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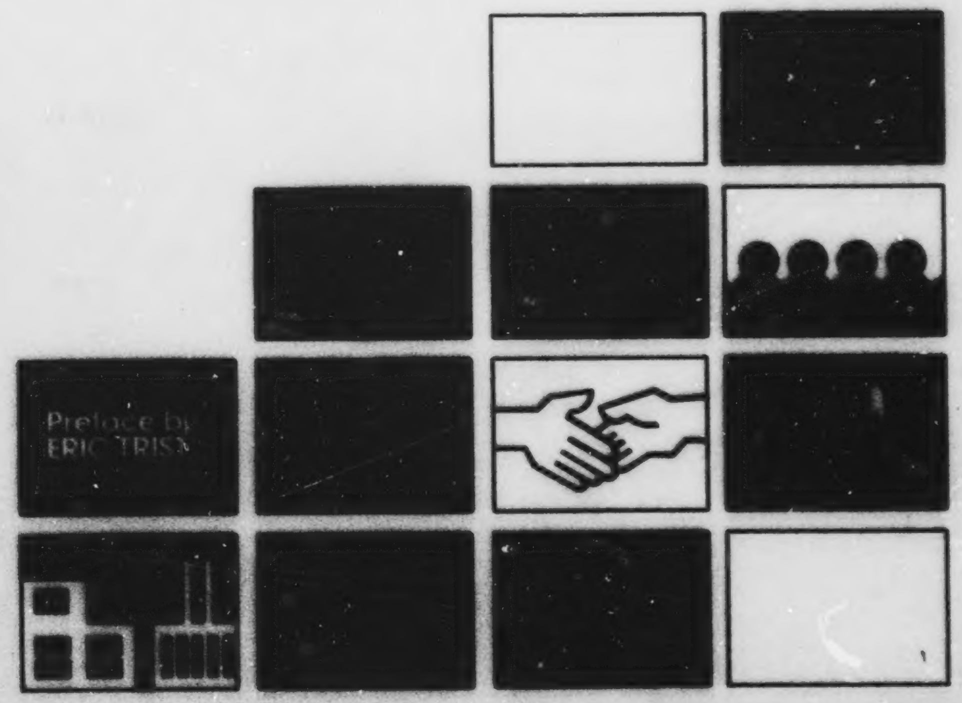
quality of working life

CONTEMPORARY CASES

Edited by
J.B. Cunningham and T.H. White



Preface by
ERIC TRIST

Canada

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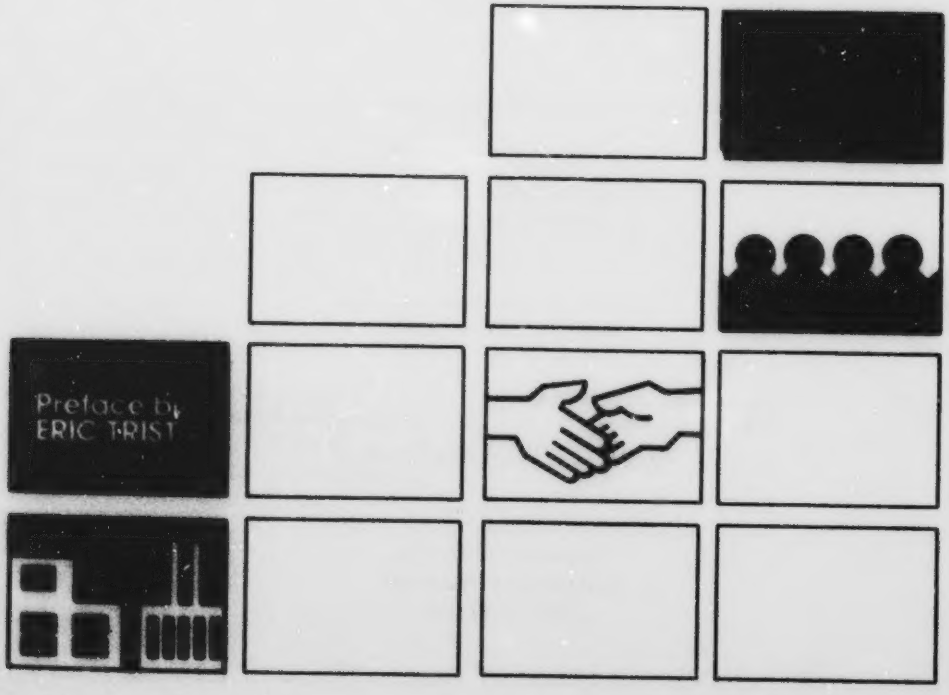

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ERIC TRIST

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CONTEMPORARY CASES

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Eric Trist

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TO THE MEMORY OF

Maurice Boisvert

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PREFACE

The history of quality of working life illustrates its importance in dealing with emerging organizational problems.[1] The increasing industrialization and automation of the workplace has created conditions where work is more repetitive, mechanized and externally controlled. On the other hand, workers are now more educated and have higher expectations with respect to participation in decision making, the meaningfulness of work, and physical working conditions. The slowness or inability to satisfy individual expectations at work is widely acknowledged to be a major cause of growing alienation among the work force, as evidenced by wildcat strikes, alcoholism, increased absenteeism, turnover and even industrial sabotage.

Slower economic growth and higher rates of unemployment in recent years have led to less emphasis being placed on quality of working life issues in favour of bread-and-butter issues of employment and income. However, quality of product counts more than ever in international competition, and this, as well as cost reduction, depends not a little on improvements in quality of working life. This makes it necessary to rethink the ways we have traditionally designed organizations if we are to be competitive and productive. Organizational innovation is needed to meet the unpredictabilities of an increasing change rate. Innovation depends on employee involvement in an open organizational climate. This spirit, as we understand it, is based on a relatively new and still emergent philosophy of work restructuring and organizational design that requires the participation and collaboration of all parties.

This book, being about the quality of working life, could be about a wide range of approaches--from Japanese management and quality circles to general applications of "organization development" and Herzberg's job enrichment. Indeed, quality of working life might be defined as a smorgasbord. Some QWL approaches have been implemented to keep the workers happy; others to keep the union out; others again to appease the union, or because a manager thought it was a good idea. Such descriptions are of little or no value, in our view, as they are not implemented within the spirit of QWL.

As illustrated in the following cases, this philosophy also asks for an explicit recognition of both the social and technical needs of the organization. Moreover, a manager or a union executive should not choose a technique or approach just because he or she has heard of its successes in other organizations. QWL techniques or approaches cannot be purchased as one buys candy from a store, with thought given only to the sweetness of the commodity. The choice of the "candy" must be integrated with the needs of the organization's social and technical system. A "best fit" between the two must be sought. This involves the commitment to understand the problems and issues underlying the specific situation, and the choice of the solution that meets the requirements at the specific time. It should also be recognized that no solution is everlasting, and therefore, there is a need for an ongoing process of design and redesign. Yet the overall direction of change can be firmly held in accordance with the underlying values of the philosophy.

The sociotechnical requirement underlying the spirit of QWL suggests that organizational change should not be introduced to meet only requirements of worker satisfaction or technical productivity. A change must respond to both social and technical requirements. An organization's technical system may be slightly inefficient in a scientific management sense, so that it can meet the requirements of the social system. In the same way, a social system cannot totally respond to worker desires and wishes; a social system must be designed to respond also to the requirements of the technical system. Joint optimization is the ideal. The design of organizational and work systems does not have to conform to strictly technical principles of efficiency and effectiveness, but should consist of the best obtainable match between the requirements of the social and technical systems.

Sociotechnical studies need to be carried out at three broad levels: primary work systems, whole organizational systems and macrosocial systems. These interrelated systems are defined as follows:

1. Primary work systems are identifiable and bounded subsystems of a whole organization--such as a line department or a service unit. They may consist of a single face-to-face group or a number of such groups, together with support and specialist personnel and the managers immediately involved.

2. Whole organizational systems are major units such as relatively autonomous divisions, entire corporations or public agencies that relate to external clientele.

3. Macrosocial systems include systems in communities and industrial sectors or governmental institutions operating at the overall level of a society.

This Casebook on QWL

Why was this casebook written? Many of us were aware of experiences throughout Canada we felt were indicative of work design operating within the spirit of QWL. A nation-wide process of QWL, however uneven, seemed to be under way. A number of activities were emerging from the work of the McGill Quality of Working Life Centre, the group at L'École des Hautes Études Commerciales in Montreal, and at the Faculty of Environmental Studies at York; there were prominent individuals at the universities in Toronto and Alberta, and at Dalhousie University. The Ontario government had set up a comprehensive QWL centre with a joint labour-management advisory committee of influential people. The federal Treasury Board had initiated a series of experiments in the public service, and Labour Canada had sponsored a number of conferences and workshops to increase awareness of QWL and had created a small QWL unit in the department. In the west, several large companies in the energy industry were seeking to design new installations based on sociotechnical principles. A new Shell chemical plant in Sarnia had become world-famous.

I became involved in Canada's QWL experience as early as February 1977. Many activities were part of this initial thrust: conferences, workshops, speeches, and television films--the first of their kind in the world, made for Labour Canada. Enthusiasm grew for certain emerging QWL projects, and interest grew in learning about projects under way in different types of setting.

The impetus for developing this casebook grew out of a conference held at the University of Victoria in 1980.[2] The goal of the conference was to review Canadian experiences related to the redesign of work. Conference participants felt that a selection of these cases should be summarized in a casebook, since no Canadian material was available. Eric Trist, Hans van Beinum, Terry White, Brian Wharf and Bart Cunningham were asked to begin working toward this objective. Maurice Boisvert joined the editorial committee a few weeks later. He was one of the most active contributors before his untimely death.

In reviewing the many cases submitted, the editorial committee developed a number of guidelines.

1. The case should be a "well-told story" of a particular organizational change, and should clearly illustrate the development over time.

2. It should describe the internal and external context of the project, including the character of the organization and its environmental setting, while highlighting the obstacles, opportunities, and costs of the intervention.

3. The authors should articulate a conceptual framework or set of working assumptions that guided the project.

4. The authors should emphasize the outcomes, lessons learned, and implications of the case. While case analysis should not be confused with experimental research, it was important to understand how the nature of the organization evolved after the changes were made. Some kind of evaluation should be attempted.

5. The authors were to provide multiple perspectives on the change process. The viewpoints on the outcomes

should not be the authors' alone, but should reflect the views of the main parties who had stakes in the projects' outcomes: various levels of management, unions, those directly involved, and those further away. The views of these stakeholders would help to substantiate the outcomes and why they occurred.

Such an extensive set of criteria for case analysis had not previously been formulated in QWL, or indeed in one or two related fields. Although not all the cases satisfy all the criteria, they do illustrate the style of case writing agreed on by the editorial committee. The writers were encouraged to exercise their initiative and insight, within specified concepts and working assumptions. The cases are intended to enlarge our knowledge and to test certain assumptions about QWL.

The Future of QWL

Organizations would be better places to work if they were designed with the assumptions and principles of quality of working life. At least that is our opinion. But quality of working life approaches do not offer magical solutions; a number of failures have been recorded. This experience is reflected in the final section of the casebook on "Difficulties in Implementation".

There is a tendency to look at QWL principles as mere techniques offering packaged solutions. This casebook demonstrates that QWL does not offer any such universally applicable packages--devices that can be used in all organizational situations. The sociotechnical assumptions underlying QWL suggest that applications will differ from organization to organization. Future principles of QWL will evolve from those so far formulated, and are likely to differ from them in many ways. The cases presented in this volume represent a punctuation of the experiences that have occurred during the last ten years in the Canadian setting. It is hoped that they will prove relevant also to those concerned with QWL in the U.S. and the industrialized countries of Western Europe, as regards both similarities and differences. We need to multiply the available comparisons.

Eric Trist
May, 1983

FOOTNOTES

[1] See Eric Trist. The Evolution of Sociotechnical Systems: A Conceptual Framework and An Action Research Program. Toronto: Ontario Quality of Working Life Occasional Paper No. 2. 1981.

[2] The conference was held March 13, 14 and 15, 1980.

INTRODUCTION

These are tough times for organizations. Economic uncertainties have created significant challenges unlike anything experienced in the heady growth period of the seventies. The early seventies were marked by widespread conflicts between labour and management over how the growing pie of earnings and profits was to be sliced. This raucous period gave Canada and the United States a record of strikes and labour strife that was close to the worst among the industrialized nations.1 Inflation fuelled expectations that each year major wage and benefit increases were essential for people in order to keep pace.

The younger, better educated workers entering the labour force during the seventies proved to be another source of difficulty for traditional management practices in bureaucratic organizations.2 Their educational preparation tended to make these newer workers question those in authority, create expectations that they would find jobs that would utilize their skills and give them opportunities for developing new skills, and give them a desire to be involved in decision making--particularly when decisions were being made that would affect them individually.3 These expectations were frequently confronted by the realities of work situations involving non-participatory decision making and narrowly specialized jobs with limited opportunities for promotion.

This poor fit between the desired and actual attributes of many jobs contributed to the late seventies being marked by complaints from management about high rates of absenteeism, turnover, and grievances, as well as concerns about shoddy or lost production. Individual workers were unhappy at being locked into what they regarded as boring and repetitive jobs where their skills were underemployed and where there appeared to be few opportunities for learning new skills and moving ahead to better positions. For many, an instrumental view of work resulted--the job came to be regarded as merely a means to an end--a means to get the money to do the things off the job that were of real interest.[4]

Organizational responses to these circumstances seemed to fit one of four basic patterns. First, there were those organizations who accepted these negative and unproductive conditions almost as a matter of course, something that had to be endured along with the dizzying wage and price spirals. The hope seemed to be that things would eventually sort themselves out and we would return to "the good old days".

Other organizations used what might be termed the "golden handcuffs" approach by maintaining the conventional nature of the organizational structure and the work that people were asked to do, while attempting to buy labour peace through increasing wage and benefit settlements.

Another response was to look for quick and easy solutions. The latest fads and fashions in personnel management were assessed and often superficial embellishments were introduced, such as eliminating the time punch clocks or employing flex-time. These changes might be effective as part of an all-encompassing, systematic approach to work improvement. But instead, they were usually employed almost as gimmicks in "quick fix" strategies where the fundamental nature of the work and the organizational arrangements remained unchanged.

In contrast with these three common responses, some organizations began to approach these issues of individual concerns and organizational ineffectiveness in a more basic and systematic fashion. Observers of the malaises affecting our workplaces suggested that what was required was to improve the quality of working life, to renovate working patterns and environments in order that there might be a better fit between what people expected from their jobs and what they actually found in their jobs. And this could be done, in their view, only by jointly involving labour and management in the assessment of the very nature of the work people were being asked to do in their jobs and the nature of the organizational arrangements in which that work was done. Such assessments were then to lead to the isolation of specifics that required improvement, and solutions sought that would allow the organization to function more effectively and people to have more meaningful work and social contacts in their jobs. These joint ventures in change, not surprisingly, have frequently come to be known as quality of working life (QWL) projects.[5]

Quality of working life, as we define it, is a systematic strategy for changing organizations so that there is a better balance between the expectations of individual workers and constituents and the requirements and constraints of the organizational system. Many organizational changes may be part of a quality of working life program-technical systems, job requirements, participation, semi-autonomous work groups, pay/reward systems, compressed work scheduling, training and recruitment, development of organizational philosophy, and modifications in the collective agreement. These changes cannot be introduced as narrowly reactive solutions if they are to be part of a quality of working life endeavour, nor can they be introduced to placate the demands of a hostile labour force. They can only be part of a quality of working life program when they are introduced as part of a long-term strategy of organizational improvement which "systematically" responds to organizational and human needs.

This book is an attempt to supply more information on systematic approaches to organizational change. It brings together a variety of case descriptions outlining attempts at being more systematic about the process of changing organizations to improve the quality of working life.

As an introduction to this topic, this chapter outlines some of the elements employed in systematic efforts to improve the quality of working life. It also highlights some of the key elements that were common in the cases presented, and should provide a framework for their review.

TYPES OF ORGANIZATIONAL CHANGES

The cases in this book describe many types of QWL intervention ranging from organizational design to organizational change and redesign. Various approaches to organizational change can be part of any quality of working life endeavour. Table I describes some of the changes made--in the technical system, job design, participation, shift schedule, support systems, operational philosophy, and collective agreement.

1. Technical Systems Changes: Most studies mentioning technical system changes were referring to the design of new equipment and facilities to carry out the work. Relatively minor changes in the technical systems included the introduction of new tools, furniture and office layout. More costly modifications occurred in the design of new organizations, where general facilities for employees (lockers, lunch rooms, offices, etc.) were planned on the basis of segregated groups of employees, and where plant operations were modified to permit close interaction between operating and maintenance personnel.

2. Job Changes: Jobs were often changed so that the workers carried out a greater variety of tasks, and with more discretion in how and when they were carried out.

3. Participation and Semi-autonomous Groups: In most of the cases, the level of direct participation increased, and workers had more direct and indirect input into the design and management of their work. Steering committees and change teams were used to facilitate the process of change in most of the cases. Semi-autonomous work groups were also used for designing work methods, production layouts, and work schedules, as well as for the organization's management.

4. Pay/Reward Systems: Changes in the pay/reward systems referred to methods for profit sharing and plans for rewarding employees on the basis of knowledge and skill.

5. Compressed Shift Schedules: In many cases, a 12-hour compressed shift schedule was introduced, usually consisting of four 12-hour shift schedules followed by four days off. The schedule usually

increased the number of days off on weekends and eliminated the psychological stigma of going to work at midnight when everyone else was going to bed.

6. Training and Recruitment: Some of the training programs that were developed included: team building, practical skills, and objective setting. The recruitment process, as defined in several cases, was directed at finding people who were not only technically competent, but who were also personally compatible with a participative management climate.

7. Operating Philosophy Statement: Many change programs worked within an explicit philosophy statement, which was jointly developed by key organizational members--union and management representatives. This statement provided the operating framework for how the design might proceed, and was frequently a mechanism for developing a positive and cooperative working arrangement between union and management representatives.

8. Collective Agreement Modifications: More fundamental modifications included the elimination of the previous collective agreement and the many pages of legalistic requirements, and the development of a framework and set of guidelines for employees to work within.

TABLE I

CHANGES AND THEIR EFFECTS

	CHANGES MADE								SUCCESS OF CHANGES	
Author(s)	Changes in Technical Systems	Job Change	Participation Semi-autonomous Work Groups	Pay/ Reward System	Compressed Work Scheduling	Support Systems Training/ Recruitment	Explicit Operating Philosophy Statement	Modifications in Collective Agreement	Degree of Treatment	Effect of Treatment
						NEW DESIGNS				
Halpern	X	X	X	X	X	X	X	X	High	Improvements relate to job redesign, increased satisfaction, participation, commitment
Dresner and Younger	Y	X	X	0	X	0	0	0	Partial	Start-up of plant was smoother, with increased participation, and enthusiasm of workforce, although it may be too early to judge effects
Ondrack and Evans	0	X	X	X	X	X	X	0	High	Improved participation; start-up was smooth; employees more concerned about economic performance
						REDESIGNS				
Wright and Lareau	X	X	X	0	0	0	X	0	High	Improved productivity, labour relations climate and worker participation. Team concept may have produced intergroup rivalry
Tucker and Taylor	0	X	Y	0	0	0	0	0	Partial	Perhaps more supervisor sensitivity to tradesmen-problems; more use of project teams; use of maintenance computer system; inability to implement many suggested recommendations
Adams and Kyle	X	X	X	X	0	X	X	X	High	Lower labour turnover, high productivity, increased morale
Alon and de Guerre	0	X	X	Y	0	X	X	0	High	At start-up, high commitment to long-term project; several organizational changes at time of preparing this casebook. Project was finally abandoned.

X - major changes made;
Y - minor changes made;
0 (blank) - no changes made

	CHANGES MADE								SUCCESS OF CHANGES	
Author(s)	**Changes in Technical Systems**	**Job Change**	**Participation Semi-autonomous Work Groups**	**Pay/ Reward System**	**Compressed Work Scheduling**	**Support Systems Training/ Recruitment**	**Explicit Operating Philosophy Statement**	**Modifications in Collective Agreement**	**Degree of Treatment**	**Effect of Treatment**
						REDESIGN (cont'd)				
Painter	0	X	X	X	0	0	X	0	High	Gain in productivity; greater employee earnings; outcome for salaried employees was not as favourable
Long	0	0	X	X	0	0	0	0	Partial	Relatively little change in job attitudes; some improvements for those who were more involved in decision making
Laing	0	Y	X	0	X	Y	Y	0	High	Team management seemed to be effective in responding to management of organization and for problem resolution
Painter, Lockhart & Spalding	0	0	X	0	0	X	0	X	Partial	Manpower development committee became an advisory body to groups involved within the community; a series of projects were initiated in response to community problems
						DIFFICULTIES IN IMPLEMENTATION				
Boisvert	0	Y	Y	0	X	Y	0	0	Poor	Work performance declined; union-management tension; employee dissatisfaction; project termination
Kiggundu	0	X	X	0	0	X	0	0	Partial	Department was reorganized after the appointment of a new manager, and most of the QWL initiatives were terminated
Bean	0	X	X	Y	0	0	Y	0	Partial	Mixed reception, employees seemed more concerned with hygiene level changes; market decline weakened management commitment; project was terminated
Nightingale	0	0	X	X	0	0	X	0	Partial	Employees began to feel that they were not represented by the committee; frequent communications breakdowns, project was revitalized when these problems were recognized

X - major changes made;
Y - minor changes made;
0 (blank) - no changes made

IMPLEMENTING ORGANIZATIONAL CHANGES

Organizations are characterized by their developed cultures. They evolve values, traditions, and power arrangements that guide their operations and establish beliefs among their members about what is expected and what is possible. Therefore, any moves to improve the nature of the work people are asked to do and to improve working relationships within the organization will likely be resisted by some, who will be either threatened by changes or suspicious that the declared objectives are camouflage for some hidden and possibly negative objectives. Programs of change in existing organizations for these reasons are usually more challenging than achieving the same ends in the start-up of new organizations. Creating organizational culture, in other words, is always easier than changing it.

Any resistance to change will be a function of a number of factors in each situation. In some organizations it may be possible to accomplish major innovations with relative ease in a short period of time. For others, each step along the way will be tentative, painful, and almost imperceptible. Assessments of how much has been accomplished will necessarily not be gauged against some absolute measuring referent, but instead will tend to be specific to each organizational setting.

Just as measures of success in achieving improvements in the quality of working life are relative to the specific situation, so too are the means employed in achieving the desired outcomes. All of this is intended as a serious qualifier to our assessment of some of the basics involved in QWL projects. There is no single best way to "do" QWL. Instead, the presentation that follows will review some of the steps commonly taken in introducing QWL to existing organizations, and readers are charged with determining their suitability for their own situations and what modifications might be more applicable.

Beginning a QWL Project. A variety of circumstances can create the need for a QWL project. Management may be unhappy about a product's declining competitiveness, a union may be concerned about a health and safety issue, or workers in an area of a plant may be dissatisfied with the introduction of a new machine. In casting about for design alternatives, union and/or management leaders may seek strategies that other organizations are using to achieve successes in dealing with similar problems. We might refer to this familiarization period as "wine tasting", where options are discovered and assessed in order to determine if there is a better way and what it might be. These explorations may be part of a concerted effort to find solutions or may be accidental discoveries of new approaches that are considered to be possible alternatives to current unsatisfactory situations. The diffusion of new management approaches is often a very haphazard process, and QWL has come to be introduced to many organizations in some very unusual and some might say accidental and coincidental ways.

The "wine tasting" is usually broadened so that others in the organization might learn more about QWL strategies, and provide a base of support for some experimentation. This may mean "selling" senior company and union executives, or attempting to engage individuals who are progressive or sympathetic to innovations. This orientation phase is critical in determining whether an organization goes any further towards implementing a QWL program and whether any such change efforts will have a reasonable chance of eventual success. It may be, for instance, that unrealistic expectations are created about how easy, quick, and major the changes will be resulting from a QWL program, or management may have developed a strong commitment to moving without having involved the union in the preliminary familiarization and planning.

Controlling a QWL Project. Once a tentative decision has been made to attempt a QWL program and labour and management leaders have committed their support, it usually follows that a third party is engaged to act as a coordinator and facilitator for the change process. In many instances this person is likely to be an outsider who can bring to the organization a background of experience with QWL and probably has already served as the resource person in the familiarization exercises referred to above. It may not be necessary to go outside for a facilitator, however. In some very large multi-site organizations, there may be persons who have had experience in facilitating QWL change exercises in other locations within the organization. One government department, for instance, may already have introduced QWL changes and be able to loan their "expert" to another department.

The choice of a facilitator is a vital consideration. The facilitator's role should be to assist participants in detecting problems at the root of symptoms, to consider a range of solution options, to assist members of the organization in executing the various stages of the change process, and to develop internal change agents that will be capable of undertaking similar ventures in the future without engaging an outside facilitator. In the conventional consulting role, the internal participants expect to develop a dependency on the outside expert, but in a QWL change project the outside facilitator should help clients to become self-sufficient.

Few organizations would embark on a change project without some reasonably senior group in place to oversee the operation. In the case of a QWL project, that group usually consists of representatives of management and the union. This steering committee is concerned with making decisions regarding implementation strategies and monitoring the progress of the project. They rarely become involved in the day-to-day work associated with the change effort. Instead, their role is to provide a sounding board for line participants by interpreting company or collective bargaining policies when required to determine the appropriateness of proposed innovations, to monitor the progress of the project, to assess the desirability of any impacts from recommended changes, and to exercise authority to terminate a project for any reason or to select possible additional sites in the organization for diffusion of the change effort. Theirs is a broad controlling mandate to ensure that whatever is done in the context of a specific change project is consistent with the goals and objectives of the larger organization.

Developing a Philosophy Statement. If a steering committee is to assess proposed broad changes and monitor their impacts in a general way, then it should have some agreed-upon benchmarks against which judgments may be made. Not only will these guidelines be of value to the steering committee, but they will serve as useful referents for those who are actively engaged in the change process. Therefore, the development of a philosophy statement is a very common initial step in a QWL change project.

A good philosophy statement should contain the key principles the organization desires to maintain as well as any new initiatives that it seeks to include as important elements of its culture.6 These can then be used as guidelines for proposed changes and help to resolve questions about the desirability of various alternative courses of action. A store, for example, may decide that it wants to continue to offer excellent customer service, that it wants to put more emphasis on a higher quality of merchandise than it has usually carried, that it wants to increase its catalogue sales as a proportion of its overall business, and that it wants to decrease its expenditures on overtime payments to employees. These elements of what would be a relatively brief philosophy statement would provide a sense of the parameters within which any changes should be introduced.

Philosophy statements can be developed in a number of ways and should be updated from time to time in order to be consistent with current organizational objectives. Effective sessions in drafting philosophy statements frequently involve a "diagonal slice" of representatives from across the organization. A diagonal slice implies that persons are chosen from different levels and different areas of the organization. A third-party facilitator is again a useful agent in assisting in the formulation of such a statement.

While it is essential to have an overall organizational philosophy statement, it is likely that once specific change projects start throughout the organization, more specific philosophy guidelines will be needed to translate the broader concepts into terms appropriate to the particular missions of individual departments or sections within departments. Whether there is a single philosophy statement or a combination of a broad organizational statement and individual guides for smaller units, there must be a consistency in their content.

Selecting Project Sites. There are no set rules for choosing locations for change projects, but frequently several sites are undertaken simultaneously. This has the advantage of ensuring that there isn't an over-reliance on success in a single project, because if the organization is attempting to assess the appropriateness of a particular approach to change, it is wise to emphasize that not all projects will be successful. The steering committee will be in a position to compare what is happening in the various projects and determine what techniques seem most applicable to their circumstances, and be able to assess what specific factors might have contributed to individual successes or failures. Also, by having several projects under way at the same time, the committee may learn things from one project that are useful in sorting out difficulties in another, and more members of the organization will develop hands-on experience in job and organizational innovations, resulting in a more substantial pool of potential internal facilitators for future projects.

Some would argue that in introducing changes it is better to focus on an entire organization rather than on certain locations within it. While this may be desirable in theory, in practice, in all but the smallest organizations the necessary resources, time, and energy to engage in system-wide change would be prohibitive.

The criteria employed in selecting potential change sites will vary from organization to organization, but frequently during the orientation sessions participants will have nominated possible areas in response to probings by the facilitator. These may be regarded as problem areas where organizational leaders have determined that there appears to be a readiness among members to participate effectively in introducing innovations. Normally, however, steering committees will attempt to find initial sites that represent a cross-section of organizational activities, and units that are not overly large. Obviously many other factors will impinge on these choices, such as the timing of the commencement of the project in relation to collective bargaining negotiations, and the capabilities of the managers in charge of the targetted units, but the steering committee has a major responsibility in determining the most appropriate locations for these trial projects.

Creating Change Teams. While the steering committee is charged with overseeing the change activities in the total organization, each site has a change team which is responsible for the the day-to-day activities involved in the various steps leading to the development and implementation of any innovations. In very small units it may be possible for all members to be part of the change team. More usually, however, representatives are selected by the unit to be members of the change team along with the immediate supervisor and perhaps a designated union representative, with the facilitator serving as the resource person.

Several factors may enhance the change team's effectiveness. Smaller teams of not more than eight or nine persons tend to be able to function more smoothly than large ones. Also important are representation from the various functions within the unit, and regular and good communication links with the remaining members in the unit and the steering committee. It may be possible for change team members to more or less continue with their regular duties in addition to the change assignment, but it is more likely that there will be periods when the demands of the change activity will require their complete attention.

Change team members will find it indispensable to have a solid familiarity with the functions of their unit, good analytical and communication skills, and an understanding of and commitment to the values of the change process. Inevitably, these requirements will involve the facilitator in some preparatory training for the teams.

Sociotechnical Systems Analysis. Considerable momentum and expectations likely will have been raised by the time the change teams are trained. Questions uppermost in the minds of team members will be what to change and how to go about it. Some will have their own views about what should be done to improve procedures, while others may see the need to make certain personnel changes. Such intuitive insights may sometimes be useful, but effective change programs are usually based on thorough and systematic assessments of the current state of affairs in the work environment. The object should be to preserve those strengths already in place and to isolate those areas where there exist opportunities for improvement. One technique that is more and more frequently employed to generate such data is sociotechnical systems analysis.[7]

Sociotechnical systems analysis predicates the view that organizations are open systems relying on inputs from their specific external environments, and that these undergo transformations resulting in the finished product or service. Further, every organization is composed of two subsystems--the technical and the social.[8] The technical subsystem consists of the procedures and tools employed in the transformations leading to the products and services produced. The social subsystem consists of the roles and relationships occupied by the people in the organization.

The interactions between the two subsystems have not always been a conscious concern for organizational analysts. Too often in the past there has been a tendency to adopt a technological determinism model, in which new machines were designed to meet certain technical specifications and the people operating the equipment were expected to adapt to the needs of the machines. As a result, health and safety issues frequently had to be dealt with after the fact, and the nature of the tasks left for the machine tenders were sometimes narrowly specialized and boringly repetitious.

In contrast with the technologically deterministic view outlined above, the sociotechnical perspective takes into account the joint needs of the technical and social subsystems and attempts to provide data that will encourage designs wherein both may operate in concert at optimal levels.

The analysis employed involves a preliminary overview known as a "scan", followed by separate consideration of the operating details of the technical and social subsystems. The scan is a preliminary overview of the larger organization with attention given to, among other things, environmental conditions, pressures, and prospects. This provides necessary information about the context in which the unit under review functions. In addition, the locale and boundaries of the unit are determined, with special attention directed to an initial identification of interdependencies with other units in the organization.

For instance, if the marketing strategy policy group of a large automobile manufacturer were the unit of analysis in a QWL change project, then the scan phase of a sociotechnical systems analysis would be most helpful if it provided a sense of what factors, either in customer preferences or government regulations, were influencing the current strategies of car manufacturers. Are trends favouring smaller, energy efficient, low pollution vehicles expected to continue into the foreseeable future? What impact, if any, are developments in the energy field having on car purchases? Is there likely to be a continuing reliance on petroleum for fuel, or is some other alternative likely to be a factor shortly? Do any of these external factors suggest a changing or changed role for the unit within the organization? What are the main links between the unit and others in the organization, and are they likely to change? What are the boundaries of the unit and do they make sense as presently laid out? How do these circumstances, present and probable, mesh with the organization's philosophy statement? It is important for the scan to make these broad assessments of the present and future circumstances before going on to more detailed analyses of the unit's particular subsystems.

The technical subsystem analysis carefully traces the flows involved in the various inputs, transformations, and outputs in which the unit is engaged. Each series of operations is broken down into components, and attention is directed to all of the factors that might contribute to a failure at any point in the process. What is the nature of these failures and what is their source? Not only do such analyses provide clear pictures of what the unit is doing and how, but they begin to suggest possible areas for change or improvement.

The social subsystem analysis seeks to determine the logic of the roles in the unit. What roles are responsible for what tasks and how are they interrelated? Are there gaps, overlaps, or redundancies, and is each role clearly defined in terms of the objectives of the unit and its relationships with others in the larger organization and the task environments? Do these relationships between individuals and with their technical tasks allow for personal satisfaction, growth, challenge, appropriate responsibility, adequate communication links, and so on?

The sociotechnical systems analysis provides the action team with a detailed, systematic picture of those things the unit is doing well, and highlights potential areas for improvement. The process emphasizes the linkages between the various operations in the technical subsystem and interdependencies with the social subsystem.

Problem Solving. The data from the sociotechnical systems analysis serve as the basis for problem solving by the change team. Various options for change are considered and evaluated against their possible effects on pertinent aspects of the social and technical subsystems, as well as their consistency with the appropriate philosophy statements. The desired changes are incorporated into a plan for redesigning the unit. Careful attention is given to each element in the plan, and these are subjected to critical scrutiny through role playing, cost-benefit analyses, worst-case scenarios, and so on. After any necessary adjustments have been incorporated, the plan is presented to the steering committee for discussion.

The steering committee is usually concerned with the workability and appropriateness of what is being proposed and whether it can be implemented under existing collective agreements. Because it represents the larger system, the steering committee may see some aspects of the redesign plan as impractical or unacceptable and request the action team to make revisions. Ideally, the interactions at this stage between the steering committee and the change team will result in a plan approved for implementation.

Implementing Proposals for Change. Most steering committees tend to be somewhat cautious in change programs, and their likely course of action will be to approve a trial period for the introduction of the redesign of the unit. Usually a first step in the process will be to require the change team to develop an implementation plan outlining the various steps necessary and a proposed schedule. These materials are again subject to scrutiny and clarification by the steering committee. Although many organizations neglect to do so, it is highly desirable that at this stage serious attention be given to evaluation mechanisms for assessing how the impacts of the redesign are to be measured.

When an implementation strategy has been agreed upon, the steering committee, change team, and remaining members of the unit meet to review the details of the planning process, the recommended changes, and the timetable for implementation. Detailed discussion and questioning of the proposals enables all those affected to fully comprehend and clarify what is intended in the changes. If individual roles and responsibilities are to be altered, then the implications must be resolved with those affected. Training may be necessary to enable the members of the unit to undertake their new roles, and if the redesign involves a team approach, skills such as team building, conduct of meetings, and conflict resolution will have to developed.

It is also important to note that redesigns frequently involve building more responsibility into lower level roles, and this has important implications for the number and nature of supervisory positions. Fewer supervisors may be required, for instance, and their duties likely will involve less of the close monitoring and "pusher" elements and, instead, necessitate more coordinating, teaching, and providing workers with opportunities to develop new skills.

The changes are implemented according to the specific plans, and adjustments made where appropriate. The steering committee receives regular updates on progress and the facilitator is available to advise or assist in resolving problems when required.

Diffusion of Change. The steering committee continues to monitor the progress and success of the various change projects throughout the organization, and as projects advance through the stages of implementation, they decide on the suitability of introducing new projects in other areas of the organization. Usually it is desirable that information about ongoing projects be provided regularly to persons throughout the remainder of the organization so that familiarity will lead to an understanding of the objectives and methods involved, as well as a sense of what it is possible to achieve through joint change efforts. This will contribute to organizational learning, and should assist the steering committee in finding other receptive locations for new innovative activities.

Ideally, when an organizational change program reaches this stage of development there are at least two major strategic objectives. One is to enable those units involved in change to maintain their momentum and develop the means for ongoing self-assessment and innovation. The second is to diffuse these adaptive attitudes and techniques across the remainder of the organization and at all levels. These are significant undertakings and are predicated on the view, expressed at the outset, that in order for organizations to cope with today's complexities, uncertainties, and challenges, they must be involved in continuous, joint problem solving directed at improving the quality of working life and the effectiveness of individuals and organizations.

The above steps describe a "typical" QWL change procedure. Many of the projects in this casebook will illustrate some variation of this procedure. These case descriptions enable the reader to understand how some organizations have innovated with changes in work and organizational design.

CONTEXTUAL FACTORS IN INTRODUCING QWL

The case descriptions that follow, although they are valuable sources of information, do not provide any causal proof of the worth of any particular organizational intervention. That is, the same changes may produce different effects in dissimiliar organizations. For this reason, it is important to highlight the many contextual features of an organization that may enhance or inhibit the change. We call these "contextual variables" because they represent the specific features of the organizational context, which make it difficult to generalize about the results. The contextual variables summarized in Table II describe the type of work, occupations involved, number of employees, unionization, reason for the change, and the catalytic efforts of the people involved.

As summarized in Table II, the cases involve a great variety of work organizations--chemical process industries, clerical and administrative, maintenance, and retail stores. They include occupations such as blue collar operators, tradesmen, community members, clerical workers, and unskilled labourers. The change sites range in size from 15 to 600 employees, and involve employees in non-union and union organizations. In some cases, management had a keen interest in bringing about the change, perhaps because of their own desire to stand out among other managers, or because of the general interest in improving the quality of working life. In other cases, the stimulus for change may have emerged from a critical need to solve the problems faced in the organization.

The changes described are many and varied. In every case, they represent efforts to bring about multiple changes; thus, it is often not possible to assess whether the outcomes resulted from one particular change or from a combination of changes.

In addition, it may not be possible to duplicate the results from one study in another similar organizational situation, unless many of the contextual variables are also present. Among these factors may be a desire by participants to be involved in a change exercise, supportive management and union initiatives, worker dissatisfaction with monotonous work, labour turmoil before the change, and the cooperative spirit of the employees. A particular change initiative, therefore, may have been effective simply because of the presence of these conditions.

What then can be said collectively about the cases contained in this book? Examination of the contextual variables suggests that the changes seemed appropriate for different types of work organizations and for different occupations. That is, in the view of the authors, QWL is not restricted to production work, but may be appropriate for process industries, as well as maintenance, administrative, and support work. Very few cases describe the

TABLE II

CONTEXTUAL VARIABLES AFFECTING ORGANIZATIONAL CHANGES

	Author(s)	Type of Work	Occupations Involved	Number of Employees Affected	Union or Non-union	Reason for the change	Catalyst
				NEW DESIGNS			
1	Halpern	chemical processing plant	operators	190	union	Interest in and commitment of managers and union to improve productivity and quality of working life	Management and union initiative, joint management-union design task force
2	Dresner and Younger	small gas plant	operators	20	non-union	Management initiative	Management and team of recruited operators
3	Ondrack and Evans	manufacturing petrochemical feedstock	managerial, clerical support, plant operators	590	non-union	Management initiative to develop improved practices	Management action with a task force of recruited managers
				REDESIGNS			
4	Wright and Lareau	refund department of an airline	ticket refund clerks	36	union	Dissatisfaction with routine and monotonous work; poor labour relations; technological change.	Joint management union committee
5	Tucker and Taylor	oil refinery maintenance department	supervisors and tradesmen	approx. 100	non-union	Concern of the maintenance manager to improve productivity and quality of working life	Task force of tradesmen and supervisors
6	Adams and Kyle	welding department	tradesmen (welders)	150	union	Labour turmoil, desire for more pay and improved working conditions	Union-management committee
7	Alon and de Guerre	supermarket	store employees	approx. 250 (4 of the 70 stores)	union	Management initiative	Team of internal resource people, an outside consultant and joint union-company group

	Author(s)	Type of Work	Occupations involved	Number of Employees Affected	Union or Non-union	Reason for the change	Catalyst
8	Painter	trailer manufacturing company	tradesmen (carpenters)	25-75	union	Managers within industry wanted to improve job satisfaction and productivity within the industry; workers, to increase their earnings	Union-management steering committee
9	Long	electronics firm	engineers, manager, tradesmen, machinists, salesmen	150	non-union	A new ownership structure was needed for the firm to continue to expand	Task force composed of employee and management representation
10	Laing	oil sand extraction	tradesmen (maintenance workers) and mine operators	4 000 in total organization	non-union	To attract employees to an isolated worksite	Top management and teams organized for maintenance and operations
11	Painter, Lockhart & Spalding	outlying community	community members	18,000 people in community	union	Failure of a government or industry to hold back the tide of labour instability and community dissatisfaction	Manpower development committee consisting of labour, management, and government representatives
				DIFFICULTIES IN IMPLEMENTATION			
12	Boisvert	warehouse for sale of durable goods	warehouse clerks	20-50	union	Management initiative	Employee committee, no union representatives
13	Kiggundu	pension division of life insurance company	administrative and clerical workers	approx. 30	non-union	History of poor management and supervision; high volume of work, no training, monotonous work	Management action
14	Bean	manufacturer of materials for housing construction	unskilled and some skilled workers	160-210	union	Foremen were experiencing difficulties in supervision; antagonism of union and employees and lack of support from management	Steering committee representing management and union
15	Nightingale	aluminum products manufacturing plant	managers and shop employees	350	non-union	Management initiative for enriching work on shop floor	Committee composed of supervisors, non-supervisors and management

typical production assembly-line type of operation, while a number reveal that positive changes can occur in non-production organizations.

It appears that the need for change in an organization is a critical factor for success, but such need does not have to arise from a crisis, and change may result from a sustained initiative by particular individuals. In other words, two factors in combination seem to have been important in bringing about a successful change--(1) a critical problem, and (2) the sustained effort of key individuals or groups in the organization.

A steering committee, task force, or study committee appear to be important elements in most of the case studies. These experiences seem to suggest that direct worker involvement in the change process is a fundamental requirement.

ORGANIZATION OF THE CHAPTERS

The remaining chapters of the book are organized into three parts, each preceded by an introductory section that sets the stage and makes reference to particular details of the individual cases. The first grouping of cases is entitled "Designing New Organizations" and contains three descriptions of the design and start-up of new operations in the petroleum and petrochemical industries. The so-called energy crisis in the seventies led to a rapid expansion in the energy and chemical sectors, with the opening of numerous new facilities such as gas, chemical, and heavy oil plants. The nature of their continuous process operations and the shortage of skilled operators resulted in a number of innovative social and work arrangements being incorporated into the designs of these new or "greenfield" sites. In many instances, a semi-autonomous team approach was incorporated into their designs, and job roles were expanded to include not only production operations, but also maintenance and testing functions.

The second part, "Redesigning Existing Organizations", presents cases that describe efforts to change various practices, structures, and relationships in already established operations. Unlike the major innovations described in the preceding greenfield cases, the extent and pace of change in these existing organizations are constrained by their established cultures, traditions, preoccupations, and politics. These cases clearly illustrate the complex dynamics of organizational change and underscore how unlikely it is that "quick fixes" will have much impact in today's turbulent times and complex organizational settings.

The final part, "Difficulties in Implementation", contains cases that detail the nature of some setbacks organizations may experience in their change efforts. While some of these may seem to be major hurdles, they are probably small in comparison with the eventual difficulties organizations may face unless they attempt to become more responsive to the evolving needs of their employees and their changing environments.

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PART I

DESIGNING NEW ORGANIZATIONS

DESIGNING NEW ORGANIZATIONS

In designing a new organization, there is no tangible set of procedures to refer to, except those developed from previous organizational designs. Several factors may make it easier or more difficult to implement the known strategies of design--history of the organization, workers' norms, managerial styles, tactics of introduction, economic climate, and others. Thus, the designs that emerged in some organizations may be difficult to duplicate in others. In this section, three cases discuss the challenges of designing new organizations. The design strategies were devised on the assumption that the organizations would be more effective and responsive if they took into account the requirements of the technology, task, and structure as well as the requirements of the social system.

The first case, by Norman Halpern, describes the events leading to the development of Shell Sarnia's new chemical plant. Shell's task force started by considering a number of problems typical of traditional organizations--inadequate communications, under-utilization of employees, excessive control, and so forth. In developing alternative practices, the task force worked out a philosophy statement that, in a general way outlined a commitment to the concept of joint optimization of social and technical systems, and expressed a belief that workers are responsible, trustworthy, capable of self-regulation, and interested in opportunities for greater participation in decision making and growth. The primary objective of the refinery should be to obtain a good return on investment in capital and human resources, operate in a safe environment as a responsible member of the community, while remaining responsive to employee needs. Several strategies were used in implementing this philosophy statement--a remuneration program, modifications in the technical system, a collective agreement reflecting the aims of the philosophy statement, and steps for team recruitment and development.

A second case, by Dresner and Younger, describes the planning process in the start-up of a small gas plant in central Alberta. An important strategy was that prospective workers had the opportunity to modify the operational plans nine months before the start-up. The main impetus for the team concept came from the manager responsible for a number of production facilities in central Alberta. Another factor was that employees were selected on the basis of their technical competence and support for the team concept.

The actual design process began once a design team was created. Although the team quickly realized that not all planning would be completed in time for start-up, it was able to have a substantial impact, especially on the organization of the work and the development of a training program to increase the number of skills each employee had. The most contentious issue was compensation, with management opting for a pay system based on a job evaluation method instead of the design team's proposal for a pay system based on one's knowledge. After one year of operation, there is an enthusiastic belief that the design efforts were useful in helping the organization respond to the problems of start-up.

Ondrack and Evans describe the steps that management undertook in implementing a participative management philosophy in a non-union organization. A key factor in the design was the new president's belief that participative management was the only way to relate to employees. He recruited a group of top managers with similar values to design and launch the new organization. A task force was formed, with the goal of developing a high performance organization and an experienced well-trained, competent workforce. In keeping with their participative philosophy, the task force designed the formal organization of the plant as a series of teams made up of supervisors and subordinates. Three types of team emerged--structured teams that had their own purpose and mandate, standing task teams concerned with issues that crossed departmental lines, and formal task teams that dealt with specific short-term issues, that is non-recurring, non-routine matters requiring investigation and recommendation. All employees were responsible for their normal work duties on a structured team while also working on various task teams. The use of the team system of management was a deliberate strategy to create an organizational climate and system of operations to support and reinforce the way jobs were designed.

Each of these three cases gives a different perspective on designing new organizations, where the recruitment and education of the work force were key ingredients in implementing the philosophy of design.

SOCIOTECHNICAL SYSTEMS DESIGN:

THE SHELL SARNIA EXPERIENCE

by

Norman Halpern

ABSTRACT

This case is related to the development of the Shell Canada chemical plant in Sarnia, a highly industrialized region west of Toronto. The project illustrates a sociotechnical systems design, involving management and labour in collaboration, based on a philosophy statement that served as a guiding framework.

A NEW WORKPLACE, A NEW PHILOSOPHY

The Shell chemical plant in Sarnia[1] operates continuously--24 hours/day, seven days/week--and employs about 190 persons. Raw propylene is first passed by a feed preparation unit where purity is improved through fractionation and chemical treatment. The resultant material is directed to both the polypropylene (PP) and isopropyl alcohol (IPA) units. At the PP plant, the propylene is combined with a solvent and processed in reactors in the presence of a catalyst (manufactured to rigorous specifications in another section of the plant). Under carefully controlled temperature and pressure, with the addition of other special chemical agents, the propylene molecules combine to produce a 'polymer' in the form of very fine powder suspended in the reaction mixture. This slurry is then processed to decompose and remove the catalyst, to permit recovery of the polypropylene powder. The remaining materials in the slurry are recycled after extensive purification. The fluffy PP powder is combined with various additives and passed through an extruder, which operates under high temperature and pressure to produce polypropylene pellets. This product is stored in hoppers, and subsequently either shipped in bulk or packaged in bags or boxes for customer delivery. There are over 20 different grades of polypropylene produced on a single line, in a blocked-out operation, each requiring extremely careful attention to ensure acceptable quality.

In the IPA unit, propylene feedstock reacts with water over a catalyst, under strict conditions, to form a crude product. This material is then processed in various stages of distillation and dehydration to produce pure alcohol.

Shell's managers made a decision to proceed with the development of this chemical plant in early 1975. The many discussions and negotiations preceding the decision were important in the development of a general commitment not to perpetuate "traditional methods of organizational and job design".[2] Investigations revealed that many companies have been successful in improving organizational effectiveness and meeting workers' needs through a variety of means: changing working climate and management style, modifying work practices, negotiating changes to collective agreements to eliminate restrictive clauses, and redesigning jobs for more effective allocation of duties and responsibilities. One of the conclusions from these investigations[3] was that success seemed to be lower when innovative organizational designs were introduced by external consultants. Therefore, Shell sought to involve its own personnel in designing the Sarnia chemical plant.

This case study describes the events leading to the development of Sarnia's new chemical plant. It highlights certain assumptions concerning quality of working life in a new organization, and the special difficulties in developing a new organization that incorporates new concepts.

In June 1975, Shell established a task force to design the new chemical plant.[4] The task force addressed itself to such questions as: Why do we want to change anything at all? What is wrong with the way we conduct ourselves today? If we could, what would we wish to change? This led to the generation of a list of prevailing organizational practices that the task force considered to be undesirable from the standpoint of productivity and employees' perceived needs.

Items cited fell in the following general categories:

1. inadequacies with communications systems and information flow,
2. under-utilization of employees,
3. excessive control,
4. need to respond more expeditiously to problems,
5. dissatisfaction with shift work,
6. high attrition,
7. boredom,
8. limited opportunities for growth for non-technical employees,

9. lack of response to changes in abilities, attitudes and expectations of the work force,

10. artificial status differentials,

11. lack of employee commitment.

The task force felt that these general concerns grew out of traditional work design. They spent considerable time discussing the reasons for the resulting undesirable practices, and the need to develop alternative practices. These discussions were important in developing a "philosophy statement" related to work design. The Shell philosophy statement outlines a general commitment to the joint optimization of social and technical systems, and expresses a belief that workers are responsible, trustworthy, capable of self-regulation, and interested in opportunities for decision making and growth. Other design objectives were to reduce shift work, modify pay systems, eliminate artificial jurisdictional boundaries, improve communication systems, and alter problem-solving practices. (Appendix I presents the philosophy statement.)

According to the philosophy statement, the primary objective of the Sarnia Refinery and Chemical Plant was to obtain an optimum return on investment in capital and human resources, operating in a safe environment as a responsible member of the community, while being responsive to its employees' needs. In order to achieve this primary objective, the company needed to give appropriate consideration to the design and management of both the social and technical aspects of the operation. The former is related to employees and encompasses such areas as organizational structure, levels of responsibility and authority, supervisory roles, communication networks, interpersonal relations, and reward systems; while the latter deals with the physical equipment--its capacity, layout, degree of automation, etc.

The company felt that consideration must be given to the design and maintenance of a communication network that avoids lapses of attention and errors in observing, diagnosing, and communicating or acting upon information. Accordingly, information should be directed to the individual capable of acting most promptly, and that individual should have the authority and the motivation to take action. In addition, the goal was to design the work environment so that: (1) the content of the work is reasonably demanding, (2) there is feedback from the job, (3) workers are able to learn on the job, (4) they can exercise some discretion in decision making, (5) they can rely on others, and (6) they can feel that the job leads to some desirable future. The philosophy statement offered criteria for developing the social system covering topics such as: responsibility, advancement, compensation, communications, information flow, job design, feedback, discretion, work scheduling, and problem solving.

The philosophy statement set out general principles for the program of organizational design at Sarnia. This paper describes the efforts to build the new Sarnia facility by working within these principles.

IMPLEMENTATION OF DESIGN PHILOSOPHY

Getting started

Securing Senior Management Sanction. The task force members realized that, if they were to continue to work within the philosophy statement, they would be faced with a heavy commitment in time, energy and money. They would also be considering some fairly radical, possibly risky, alternatives. It seemed prudent to approach senior management to explain the situation and solicit their endorsement and approval for resources.

At a meeting with senior management,[5] unanimous approval was granted for all aspects of the proposal, and a mandate to proceed was given to the task force.[6] The general approach at this session was to review the philosophy statement and refer to a parallel list of specific policies and practices that the task force viewed as contravening the statement. The task force outlined, as "for instances", changes that might be introduced to relfect the new philosophy. This procedure served to clarify the task force's interpretations, in order to ensure fairly reasonable understanding by senior management of what they were requested to sanction.

The task force also identified obstacles to attaining and sustaining their new organizational design. Key ones were: proximity of the new plant to the existing refinery, pressures from neighbouring external plants for Shell employees to conform, the need to staff extensively with personnel experienced in traditional work practices, the presence of a union in the neighbouring refinery, the need for all levels of management to accommodate the new philosophy, and the attempt to introduce a novel style of management while dealing with a technology that was totally new to Shell Canada.[7]

Involvement of the Union. The task force was conscious of the presence of the Oil, Chemical and Atomic Workers Union (OCAW) in the neighbouring refinery, and was aware that the certification might extend to employees within the new chemical plant. There were nagging questions related to: the role that the union might play in the design of this facility, its response if approached and invited to participate, and the company's reaction if the union opposed the design philosophy and objectives.

The project was never intended to seek a union-free plant. The prime objective was to ensure success of the new plant design, and a key concern was that the union would not fully support this effort. However, the OCAW leadership seemed interested in pursuing actions related to improvement of quality of working life; there was a strong likelihood that they would sincerely wish to participate in this exercise; and a decision was made to seek their cooperation.

An initial meeting was convened with the national director of OCAW to review proceedings to date.[8] The national director expressed an interest in pursuing the matter further, stating that quality of working life improvement had long been high on his priority list. Two more meetings were held with additional members of the national executive, the Ontario regional coordinator, and the Sarnia Refinery local executive. Having heard the company's position, the union representatives retired for a short private discussion, and then returned to advise that they had an interest in collaborating with the company on this study. However, they would do so only on the condition that they would participate as "full partners and maintain a high profile". This was certainly acceptable to the company, and the local president was nominated to join the task force.[9]

Comparing the Traditional and Alternative Designs

A Traditional Design. It was first necessary to estimate staffing requirements for the new plant, to satisfy corporate needs for budgeting and manpower planning. This was accomplished by examining other similar operations and developing an organization modelled after existing typical polypropylene (PP) and isopropyl alcohol (IPA) installations. This traditional design is presented in Figure I.

A traditional arrangement would consist of four "process operating" departments or sections (IPA, PP reaction, PP extrusion, and PP warehousing), a scheduling section, a maintenance department, and a laboratory for quality control testing, each working through a hierarchy of several levels of supervision and management, as shown. Two sets of shift supervisors would be included in the operations department; they would report to three day supervisors under two process managers. Quality control testing would be the responsibility of a group of technicians directed by a laboratory supervisor, assisted by a lab technician and chemist. Production scheduling would be handled by an independent group. Equipment repair would be assigned to the existing maintenance manager in the refinery, who would be supported by a supervisor, planner, two foremen and a contingent of craftsmen.

The Alternative Design. The alternative design, illustrated in Figure II, offered several changes from the traditional design, especially in relation to departmental and jurisdictional boundaries. In traditional organizations, boundaries seemed to be identified by "territory, time, and technology".[10]

FIGURE I

TRADITIONAL ORGANIZATION

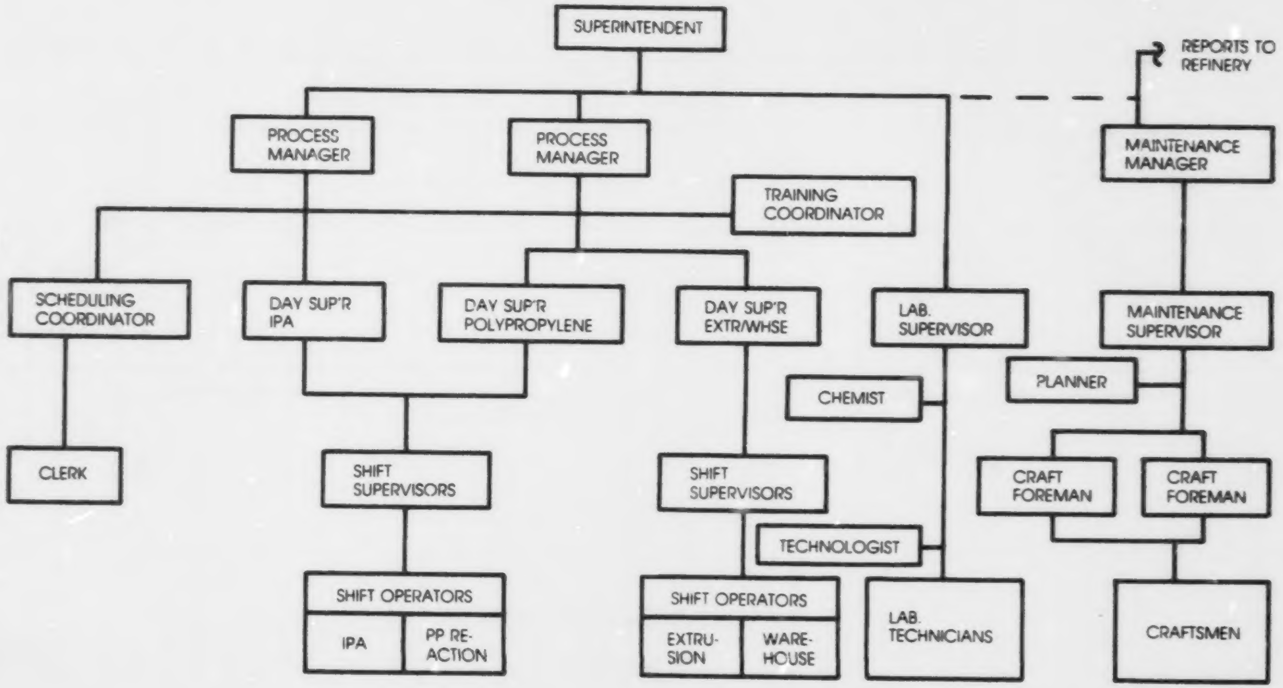
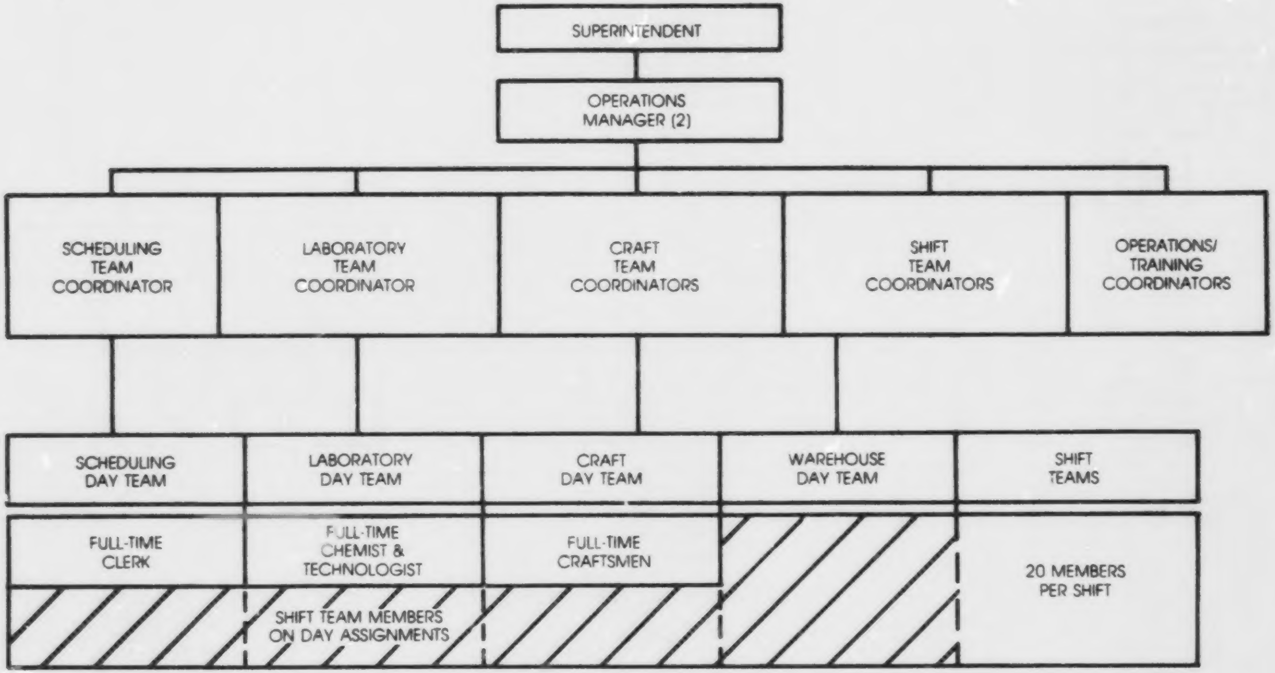

SUPERINTENDENT
REPORTS TO REFINERY
PROCESS MANAGER
PROCESS MANAGER
MAINTENANCE MANAGER
TRAINING COORDINATOR
SCHEDULING COORDINATOR
DAY SUP'R IPA
DAY SUP'R POLYPROPYLENE
DAY SUP'R EXTR/WHSE
LAB. SUPERVISOR
MAINTENANCE SUPERVISOR
PLANNER
CHEMIST
CLERK
SHIFT SUPERVISORS
SHIFT SUPERVISORS
CRAFT FOREMAN
CRAFT FOREMAN
TECHNOLOGIST
SHIFT OPERATORS
IPA
PP RE-ACTION
SHIFT OPERATORS
EXTRU-SION
WARE-HOUSE
LAB. TECHNICIANS
CRAFTSMEN

FIGURE II

CHEMICAL PLANT ORGANIZATION


SUPERINTENDENT
OPERATIONS MANAGER (2)
SCHEDULING TEAM COORDINATOR
LABORATORY TEAM COORDINATOR
CRAFT TEAM COORDINATORS
SHIFT TEAM COORDINATORS
OPERATIONS/ TRAINING COORDINATORS
SCHEDULING DAY TEAM
LABORATORY DAY TEAM
CRAFT DAY TEAM
WAREHOUSE DAY TEAM
SHIFT TEAMS
FULL-TIME CLERK
FULL-TIME CHEMIST & TECHNOLOGIST
FULL-TIME CRAFTSMEN
20 MEMBERS PER SHIFT
SHIFT TEAM MEMBERS ON DAY ASSIGNMENTS

After debating the rationale for boundary location, the task force concluded that there should be no artificial jurisdictional divisions within the chemical plant. To maximize self-regulation at the operator level, it was suggested that individuals or groups be provided with the necessary skills, information, and authority to function in this manner. The concept of a multi-skilled shift operating team emerged.

Discussion followed, over a period of many months, regarding the optimum mix of skills within the team. Questions posed were: How much could one expect an individual to learn over a reasonable period of time? What was a reasonable period of time? In trying to develop a jack-of-all-trades, at what point does one start to suffer as a consequence of "dilution of knowledge"? Of all the skills required to most efficiently operate the plant, how should they be distributed amongst individuals or groups?

During this period of the design, two objectives emerged: (1) that the skills profiles be based on "need-to-know" rather than a "nice-to-know" basis, with the goal of enabling people to respond expeditiously to most frequently occurring problems, and (2) that consideration be given to making shift workers competent at handling tasks normally dealt with during the day period, in order to allow them to spend more time on days and thus improve their work schedule.

It seemed desirable for every member of each team to be fully capable of operating all sections of the plant. This decision emerged from an analysis of experiences at other polypropylene/IPA plants, especially with regard to problems frequently encountered and the reasons for loss in productivity. The ability to understand effects upon one section of changes in another was considered vital,[11] and there was seen to be much value in having the flexibility within the work force for operators from various units to assist one another during upset conditions. While one could reasonably look upon IPA as being separate from polypropylene, the task force was reluctant to establish an independent work force. Polypropylene operation is rather demanding, whereas IPA production is relatively trouble-free. Having two groups of operators on the same site, working out of the same control centre, with such a wide difference in demands upon them, was considered totally unacceptable. A general chemical plant operator, not specifically affiliated with either polypropylene or IPA, was judged to be more appropriate. A complement of 20 persons was needed to operate the facility, allowing for training, vacations, and sickness.

Attention was then directed to specifying other team skills that would satisfy the objectives of greater self-regulation, improved response time to problems, and opportunities for day assignments and reduced shiftwork. Detailed examination of other similar operations with a view to identifying operational needs led to the "specialty skills" profile within the team, as shown in Table I.

The depth of knowledge and the elements included in each of the above areas were to be defined on the basis of how much was needed to support the operation. Hence, it was not intended to develop the electrical specialist into a journeyman electrician, but rather to have him or her acquire the necessary skills to deal with the frequent electrical problems which called for attention. More sophisticated and less frequent events would be handled by a journeyman electrician.

To supplement these shift teams, a craft team was created, composed of 14 journeyman craftsmen working days only, Monday to Friday. This group would train the shift-team members in their specialty craft, and make repairs requiring a higher level of skill. Supplementary contract maintenance workers would be required until shift team members acquired significant craft skills.

Four and a half teams, working 37 1/3 hours/week on a rotating shift schedule, were required to cover the 24-hour period. Six shift teams were created allowing one and half teams (on average) to be on days, Monday to Friday, at all times. During this period, they would work in their specialty areas, joining with the craft team or functioning as schedulers, warehousemen, and quality control testers. The number of shift teams was determined by the distribution of specialty skills, and the availability of opportunities to productively deploy the

TABLE I

SPECIALTY SKILLS PROFILE WITHIN EACH SHIFT TEAM

Specialty Skill	No. of Team Members
Instrumentation	2
Electrical	2
Pipefitting	2-3
Millwrighting	2-3
Analyser	2
Laboratory	4
Scheduling/Warehousing/Dispatching	5
	20

workers during their swing onto days. It was believed that the day period would also provide an ideal time to conduct some of the training.

The work schedule currently in effect is shown in Figure III. The following features are worthy of note: (1) combination of 12 and eight-hour shifts, (2) time spent on days is two-thirds of total time, versus only one-third on a traditional eight-hour three-shift pattern, (3) many days off coinciding with weekends, (4) large number of days off in general, including the two nine-day blocks during every 18-week cycle, and (5) shift integrity; i.e., same group of people work together at all times.

To emphasize a higher level of self-regulation, managerial and supervisory positions were analysed in light of the objectives of the philosophy statement. While it seemed that all functions of the first line shift supervisor could be assumed by an autonomous work group, it was felt that such a move would be quite drastic. Considering the complexity and sophistication of the manufacturing process, as well as its newness, some form of supervision was recommended. The task force decided to provide a single "team coordinator" for each shift team, who would act as a resource person and facilitator to assist the team to function as autonomously as possible. These individuals were the key to the success of the proposed organization, and careful attention to their selection and training was recommended.

The role of the day supervisor was then reviewed with the objective of developing a work team with the confidence and competence to deal with the constantly varying conditions encountered 24 hours a day, seven days a week. It seemed that the team and its coordinator must be allowed to mature to a "state of independence". The task force was concerned that, with the day supervisor in the line as indicated in Figure I, he would tend to usurp some of the powers of the team, thereby weakening it. It was concluded that the day supervisor could best serve the organization in a staff position, acting as a technical advisor, providing continuity for day-to-day operation, and assisting with coordination of activities related to scheduling of maintenance and long range planning. He was subsequently retitled Operations Coordinator.

FIGURE III

CHEMICAL PLANT SHIFT SCHEDULE

Weeks	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S
1 - 3	D	D	D	■	■	■	N	N	N	■	■	■	D	D	D	■	■	■	N	N	N
4 - 6	■	■	■	D	D	D	■	■	■	N	N	N	■	■	■	D	D	D	A	■	■
7 - 9	■	■	■	■	■	■	■	A	A	A	A	A	■	■	A	A	A	A	A	■	■
10 - 12	N	N	N	■	■	■	D	D	D	■	■	■	N	N	N	■	■	■	D	D	D
13 - 15	■	■	■	N	N	N	■	■	■	D	D	D	■	■	■	N	N	N	■	■	■
16 - 18	A	A	A	A	A	■	■	A	A	A	A	A	■	■	■	■	■	■	■	■	■

D - 12 hour shift - 7 a.m. to 7 p.m.

N - 12 hour shift - 7 p.m. to 7 a.m.

A - Day Assignment - 8 a.m. to 4:30 p.m.
(1/2 hour lunch)

■ - Day Off

The shift team coordinators would report directly to the two process managers. After a review of the latter's responsibilities, little justification was found for two such positions. Furthermore, the split between process and maintenance was regarded to be inconsistent with the general objective of eliminating artificial jurisdictional boundaries. This arrangement would tend to establish a potential "win-lose" atmosphere, with the maintenance manager striving to minimize equipment repair cost while the process manager was mainly interested in maintaining production. Therefore, the task force decided to merge the two positions and make both, in their new guise as operating managers, jointly responsible for the overall well-being of the plant.

Additional technical and operating staff were required during the commissioning and start-up phases of the project. Training programs had to be developed, operating manuals written, and instruction provided to new employees. One option considered was to augment the initial staff complement with persons who would gradually be weaned from the organization after two to four years. Their knowledge and expertise would by then be absorbed by others. But such an approach could lead to these "temporary" advisors becoming permanent fixtures. An alternate option was selected, in which experienced Shell expatriate assistants from Europe were engaged on two-year to three-year assignments. This eliminated the need for costly training, and provided a group of experts who were motivated not to stay but rather to return home within a reasonable time. Subsequent experience revealed the need for longer than anticipated coordinator support, so temporary assistant coordinators were appointed following the departure of the expatriates.

One important aspect of the alternative design is an arrangement to rotate multi-skilled members of the shift team through cycles of day assignments. They would work alongside permanent members of a day team as schedulers, laboratory technicians, warehousemen, or craftsmen. The entire organization can thus be regarded as a single department composed of various sub-teams.

Remuneration, the Physical Plant, and the Collective Agreement

The Remuneration Program. The philosophy statement sets out that compensation should be on the basis of knowledge and applicable skills, rather than the task actually being performed. Historically, the design of organizations in the petrochemical industry had been based on the concept of job classifications; i.e., there were specific positions, each defined by tasks to be performed, and a rate of pay assigned. Each position was filled at all times, and in the event of absence, an employee at a lower classification would be temporarily upgraded to fill the senior vacant position. Promotion from one classification to the next occurred only when someone left the system, and seniority was a key consideration. As a result, employees often had to wait a long time before getting a permanent increase in pay, even though they were very capable of handling more senior jobs (and in fact usually did for extended periods such as vacation and sickness relief). In addition, incompetent individuals were sometimes temporarily upgraded because of a requirement to fill every slot. In recent years, a "progression" program has evolved within Shell whereby, up to a certain point, employees are paid in accordance with their demonstrated skill and ability, regardless of what they are called upon to do. There still remains, however, provision for promotion by vacancy at the senior levels.

In the chemical plant, to comply with the intent of the philosophy statement, a scheme was developed to allow all employees to progress to the top level, if they acquired a multiplicity of skills. As outlined earlier, each shift-team member was expected to become capable of operating every section of the plant, in addition to acquiring skills in a specialty area (see Table I). For the purposes of training and compensation, the "operations" portion of the complex was divided into ten job knowledge clusters (JKCs), and each of the specialty areas (instrumentation, electrical, pipefitting, etc.) was broken down into 40 modules (see Table II).

Upon entry (at $1124. per month based on rates that came into effect at the signing of the first collective agreement in 1978), an employee commences basic training,

TABLE II

PROGRESSION PROGRAM

Salary** - $/Month	Process Operations	Specialty Skill
	Total	Total
$1 698	10 JKC's*	40 Modules
$1 643	1 JKC	4 Modules
$1 588	1 JKC	4 Modules
$1 536	1 JKC	4 Modules
$1 483	1 JKC	4 Modules
$1 429	1 JKC	4 Modules
$1 376	1 JKC	4 Modules
$1 322	1 JKC	4 Modules
$1 269	1 JKC	4 Modules
$1 215	1 JKC	4 Modules
$1 162	1 JKC	4 Modules
Entry — $1 124	Basic Training	

*JKC — Job Knowledge Cluster

**Basis 1978 Wages

which covers a spectrum of items at an elementary level. After demonstrating, through testing, that this portion has been satisfactorily mastered, an increase in pay is granted. To earn the next raise, employees must demonstrate competence in one JKC and four modules of their specialty skill. This progression continues for nine more stages until the top wage is reached. It was estimated that, on the average, the top rung would be attained within seven years.

The monthly pay system for the entire work force was similar to that normally reserved for staff personnel, and had the goal of eliminating the traditional "we-they" atmosphere.

Modifications to the Technical System. While the social system was being designed in accordance with the philosophy statement, the technical system was constantly surveyed to assess its compatibility. Two separate control centres--one for IPA and another for polypropylene--were initially suggested. The laboratory was to be located within the refinery about a mile away from the chemical plant site, and general facilities for employees (lockers, lunch rooms, offices, etc.) were planned on the basis of segregated groups of employees.

The need for several major changes in the engineering design became obvious. The two proposed control centres were merged into a single facility. (The engineering designers had assumed that separate work forces would operate these units.) The laboratory was relocated within the control centre building, since quality control testing was to be an integral part of the process operator's job. Administrative and operating accommodations were located as close to each other as possible, and office facilities were rearranged to permit close interaction between operating and maintenance personnel. (The necessity for extremely costly blast-proofing prohibited putting all personnel housing under one roof.) A single parking lot for everyone was provided inside the fence with no reserved spaces. (The original design called for two lots--one outside the plant gate for hourly-paid workers, and a second inside for select staff personnel. But in view of the objectives of minimizing artificial status differentials and assumptions of trust and responsibility, such an approach could not be supported.) A single lunchroom was included, and offices sized and furnished on the basis of need rather than status.

In reviewing the activities required of the multi-skilled teams in the manufacturing process, one function was judged to be intolerably mundane, considering the expected skill level of this work force. This was the task of manually placing bags, to be filled with polypropylene, onto a bagging machine. The most desirable solution was deemed to be elimination of the need for this assignment, even though the workers would probably accommodate the ordeal by sharing this chore. After much investigation and discussion with bagging machine manufacturers, the engineering designers emerged with an automated bag-placing system.

The proposed social system probably had the largest impact on the design of the communications and information network, as can be demonstrated by the numerous references to this aspect by employees. Because of the recognized importance of data collection and dissemination, the computer designers became members of the task force. The designers and programmers of the computer system provided information at various levels in the organization, in forms and frequencies which would otherwise have been impossible.

An objective stated in the philosophy statement was to provide "meaningful" information at the shop-floor level. This led to a decision to provide economic feedback to the extent possible. Rather than stating that "our target temperature on the reactor is 250°C, please try to maintain it," the operator is now advised "our target temperature is 250°C; we are now actually at 225°C; the incentive to attain target is an improvement in yield outturn to the extent of $550/day". No other instructions are necessary. It is quite well understood that the objectives, within constraints of safety and protection of the environment, are to maximize profits or minimize costs. As the operators make moves to adjust any deviant variable, they are provided with feedback every few seconds as to the impact of their efforts "in meaningful terms". If there are several conditions requiring correction, they now have the information to decide where efforts should be focussed. Traditionally, target setting is done by the engineering or planning office, and the outcomes are meaningful only to those who understand the significance of achieving the objective. The goal of meaningful information is to give the operators more understanding of the rationale underlying each procedure.

The Collective Agreement. Several ways of satisfying the union's concerns while maintaining the objectives of the philosophy statement were explored. These included attempts to alter the collective agreement by revising clauses which would not apply to the new site or by including an addendum with modified provisions. These approaches were found to be unsatisfactory. It was eventually decided to treat the new facility as a separate unit with its own bargaining committee and agreement. The prevailing contract was then set aside, and negotiations began with a clean slate.

Both parties agreed that the make-up of the collective agreement should reflect the general aims of the philosophy statement and resultant organizational design. The assumptions of trust, maturity, responsibility, and capacity for self-regulation and problem solving should also extend to the area of labour relations. A collective agreement composed of tight rules and regulations decided by a management-union body was regarded as inconsistent with a workplace design based on minimal specification. Therefore, a contract was sought which would specify the absolute minimum, to provide only a framework and set of guidelines for employees to work within. Responsibility for filling in any necessary details would be left with the work force.

The complete text of the original agreement, signed in 1978 and renegotiated four times to date virtually unchanged, is presented in Appendix II. Significantly, the contents of this contract are contained on eight pages, as compared with seventy-five for the traditional one covering employees at the adjoining refinery; and there is neither a management's rights clause nor a specified grievance procedure. This was also the first agreement with Shell providing for compulsory dues check-off, and with no reference to a probationary period. The intent is expressed in the foreword which confirms that the purpose of the agreement is to provide an enabling framework to ensure a productive operation with meaningful work for employees.

SUPPORT SYSTEMS

The research preparing for this project revealed that many organizations had experienced failure because they developed and implemented an innovative design, staffed it, then walked away from it expecting that it would function as intended. However, one can not simply engage any group of people, thrust a copy of the philosophy statement into their hands, declare "You are now a responsible, trustworthy, self-regulating team--go to it!", and expect a miraculous departure from traditional behaviour. Many people may disagree with the assumptions made in designing the new organization, and have no interest in working in such an environment. Others, for whom these concepts have appeal, might be eager to join; however, in spite of all their good intentions and efforts, they may lack the necessary skills to function effectively in this milieu. This is particularly likely if they have already worked in a traditional system, have been conditioned to behave in a particular fashion appropriate for that organization, and have developed attitudes and habits that would be in conflict with the new philosophy. Roles in plants designed to utilize extensive participation, problem solving, and decision making by all levels of personnel, often in groups, are different from those in traditional plants characterized by centralized control and highly specialized jobs. Many who are successful in traditionally structured organizations may not shine in newly styled ones.

Successful implementation and sustenance of a novel organizational design should, it seemed, include: effective employee recruitment, role clarification, relevant social skills training, and development of mechanisms for self-management.

The Employee Recruitment Program

Team Coordinators. The Sarnia design task force decided to include a coordinator within each of the work-teams. While this individual's role was rather fuzzy at the time, it was envisaged that the coordinator would not be simply a replica of the typical shift supervisor, but rather a facilitator and resource person for the team.

The usual selection procedure would have been to notify management at the various operating locations across Canada of the opportunities available at Sarnia, and request nominations of candidates. There was much concern, however, about the criteria by which others would assess suitability for these positions. Customarily, seniority and operating competency were significant factors. Would these still be key in the minds of those who had not participated in the task force? If so, many interested, potentially good individuals might be overlooked. Also, particular care was needed in choosing the team coordinator, since this person would be the link between organized labour and management. Most of the time this person would effectively be the site manager. For these reasons, the task force recommended open advertising within the company, allowing application from all. This somewhat radical step was discussed with management at the locations which might be affected, and an advertisement describing the position was publicized.

Approximately 75 responses were received. The superintendent and an employee relations supervisor did an initial screening and reduced the number of candidates to about 35. This group was then interviewed by an operating manager and an operations coordinator who, while appraising the overall person, concentrated on technical competency. An external consultant then carried out a two-hour in-depth interview to assess social skills and personal characteristics. Interviewers then convened for a day, at which time ratings were compared and debated, and a final selection made.

Team Members. There were 108 shift team member positions to be filled. Because high attrition rates had left most of Shell's other operating locations with a relatively inexperienced complement, there was little opportunity to transfer the company's operating people onto the new site. Therefore, most of the work force would have to be obtained through external recruitment. Recruitment would be handled by the team coordinators, with staff assistance from the employee relations function.

On the basis of experiences reported by others in the area, it was estimated that in excess of 2 000 applicants could be expected. In fact, there were 2 600. The heavy response made the task of scheduling interviews a major logistical problem. There was concern whether the inexperienced recruiters were capable of assessing the suitability of applicants and maintaining consistency in evaluations. It seemed necessary, also, to inform the applicants of the organizational concepts proposed for the plant, so that they could make an intelligent choice as to whether they wished to work there.

Workshops on recruitment selection were designed to: (1) identify desirable characteristics for persons working in this environment, (2) provide interviewers with skills to make such an assessment, and (3) develop a suitable system for conveying information to applicants regarding the intentions for this worksite. The last objective was fulfilled by establishing information centres and developing a videotape.

Training and Development

Implications of Philosophy Statement.

Although work on organizational design was progressing well, it was evident that there were many interpretations of the various clauses of the philosophy statement, and the need was felt to attempt to reach a common understanding. Therefore, in October 1977, when all management and staff personnel had been appointed, a five-day residential workshop was held. The prime purposes of this session were to clarify the implications of operating within the philosophy, identify appropriate behaviours, and negotiate roles.

Self-management Skills Training.

A need was identified for self-management skills that would assist people to function effectively in this environment. To address this requirement, a 32-hour training program was developed, which covered: (1) self-assessment, individual differences, (2) group dynamics, task-maintenance concepts, observation skills, feedback, members' roles, (3) group problem solving, group decision making, concept of leadership, (4) competition versus collaboration, (5) communications, and (6) concepts of motivation and developmental discipline.

Team Formation. Shift teams had not yet been formed by the time the self-management skills training was completed. This task was deferred as long as possible to allow members to get to know one another before being assigned to a permanent team. A committee, consisting of six nominated team members and three coordinators, was established to make the final decisions. Elements taken into account when composing the teams were distribution of skills, balance of experience/inexperience, age distribution, and members' compatibility. Members completed a form denoting first, second, and third choices of specialty skills they would like to acquire and choices of peers they would like to be with on the same team. The team formation committee processed this information and, happily, just about all of the members' choices were accommodated.

Development of Norms. Rules and regulations were minimized so that organizational members would be responsible for developing the "norms". Shortly after the teams were formed, a 28-hour structured exercise was undertaken, during which members were requested to identify areas requiring established norms, and to suggest appropriate norms. Lists were generated by each team, discussed amongst all teams, and compromises negotiated where necessary.

A Team Norm Review Board (TNRB) was established, consisting of the following membership: one representative from each team; one team coordinator; one operations manager; the union vice-president, and a representative from employee relations, for a total of 11 persons. The charge to the TNRB was to: edit norms, interpret and disseminate norms throughout the plant, monitor team norms for consistency, suggest modifications to norms, support the teams in their attempt to uphold norms, receive recommendations from teams regarding norms and suggested changes, encourage developmental rather than punitive discipline, and deal with recommendations and requests from teams and members regarding problems and disciplinary issues. This board operates by "consensus to support", with each member having veto power.

Each team also identified the need for several functional roles, to be filled by various members of the team on a rotating basis. These typically included a chairperson, secretary/recorder, work and duty scheduler, training scheduler, vacation scheduler, social director, treasurer, safety representative, TNRB representative, overtime distribution scheduler, and union steward.

All teams (including management and staff) agreed to meet regularly to review and assess how things were progressing. They were encouraged to assess expectations, set forth problems, agree on necessary action, and make plans for the future. Minutes of all sessions, would be distributed to everyone in the plant. Issues not resolved at the team level were referred to either the Team Norm Review Board, management, or the union-management committee.

Continuous Redesign. One of the principles of sociotechnical systems design is the "principle of incompletion".[12] That is, the design is never complete. One is continuously learning and modifying accordingly. The Team Norm Review Board and specially appointed ad hoc task forces are the mechanism for handling proposals for redesign. To date, numerous modifications of the original design have already been implemented. These include: modifications to work schedules, mechanisms for distributing overtime, changes to progression pay systems, alterations to staffing complement, establishment of minimum performance standards, redesign of quality control procedures, redesign of staffing in warehouse, alterations to training procedures, and changes to methods for selecting supervisors.

OUTCOMES AND LEARNINGS

There is a need to understand that the hoped-for results of the organizational design cannot be achieved on the first day; it is an evolutionary process leading to a distant objective. In order to reach that objective, one must define it operationally--"how will we know when we have achieved it"--and develop some mechanism for continuous assessment as to "where we are"? Ideally, criteria and methodology for assessment should have been established and implemented immediately. However, because of the preoccupation with start-up issues and difficulties encountered in defining the philosophy statement operationally, this issue kept being deferred. It was not until early 1980 that a formal approach was adopted. It was agreed to pursue evaluation at three levels--individual, the team, and the entire organization.

A task force was established initially to develop mechanisms for individual assessment. The resulting Performance and Development Review (P. & D.R.) system includes identification of agreed criteria and operational definitions, with the categories "needs improvement, satisfactory, exceptional". Assessment is based on self, peer, and supervisory evaluation. The purpose is "developmental" (there is no link to remuneration) and the team assumes responsibility to work with the individual member to fulfill agreed action plans.

A second committee was formed in mid-1981 for evaluation at the team and organizational level. The stated purposes were:

1. To provide information as to how we are doing to corporate office, national union executive, other Shell companies, news media, other quality of working life groups, etc.

2. To assess strengths and weaknesses within the organization.

3. To provide information on continuous design, since this organization is considered to be a "learning one" (e.g., need to know where changes, if any, are required).

4. To answer questions such as: are we successful? is the design working? what is the payout/return? what could we do differently?

5. To provide information for designing future plants and organizations.

6. To provide information for teams to measure performance.

Work to date has consisted of identification of data and information required. The next step is to establish means for collecting and interpreting this data.

It is difficult at this early stage to make definitive claims regarding results. However, some beneficial outcomes are apparent:

1. Shift-team members have developed a high level of operating competency. Evidence indicates that, when equipment mechanical problems are under control, plant operation is exceptionally efficient.

2. Benefits of multi-skilling are obvious. Quality control (handled entirely by operating personnel) is excellent, and shift-team members contribute significantly to equipment maintenance and repair.

3. There is widespread participation in all matters. Output of the ad hoc task force is extensive and of high quality. Examples of issues dealt with were cited in the previous section on continuous redesign.

4. It is widely accepted that this is a "learning" organization. Members are coping well with the idea that they are in a never-ending process of redesign.

5. While there was considerable skepticism at the beginning related to assumptions and objectives outlined in the philosophy statement, the level of support and commitment is now high.

6. As a result of substantial follow-up training, problem solving is now occurring in a fairly efficient manner.

7. Union-management relations are excellent. The thin collective agreement has been renewed, virtually unchanged, for a fourth time. To date, the plant superintendent has been formally involved in only three grievances (versus 66 plus a number of arbitration cases in the neighbouring, traditional plant over the same period).

Participants have learned the following from the problems and successes of the Sarnia project.

1. A participative design that includes as many as possible of those who will ultimately work in the environment in question, is essential. The problems encountered during the early stages of operation, owing to lack of experience with a novel social system, are of such a magnitude that, without very strong commitment to the objectives, one might readily succumb to the pressures to return to traditionalism. (Undesirable alternatives to the participative model include design by a very few from the organization or, worse, design by external experts.)

2. There is a need to get early commitment to the design objectives from senior management and union officials. This facilitates their approval for departures from the norm on critical issues such as wage systems and the nature of the collective agreement. Also, it ensures their support during the bumpy early learning period.

3. During the process of design, conditions must be established to encourage creative thinking. One must allow participants to suggest outrageous ideas and objectives without requiring them to outline in detail all the elements of actual application. Identification of obstacles and development of strategies to overcome obstacles should be dealt with separately from "idea generation", with support from the entire design team.

4. It is necessary, in examining rationale for change, to consider all key parties involved. A useful exercise is to explore the question "what's in it for me?" from management, employee, and union perspectives.

5. Different interpersonal and social skills are required to function effectively in a participative environment vis-à-vis an authoritarian one. Such skills are not easily acquired, especially by persons with a traditional background. Training in this regard is complex, and classroom instruction by itself, prior to commencing work, is inadequate. There is a need for continuous training on-the-job, tied to actual work experiences. It was found necessary to add a facilitator/trainer to the Sarnia organization, to be available to work with the various groups and individuals as the needs become evident. In particular, workers need help and advice regarding appropriate leadership style, problem solving, decision making, conflict resolution, role clarification, and conduct of meetings.

6. Varied and unrealistic expectations tend to emerge, primarily concerning the time required to meet objectives. Not having achieved "instant utopia" leads to considerable frustration. Realism is needed; people must understand that they are involved in an evolving, developmental situation, that espoused objectives are long-term targets and, indeed, that some may never be realized to everyone's satisfaction.

7. In line with the previous item, managers and supervisors must be conscious of the need to practice situational leadership, i.e., to be sufficiently flexible in their style to be able to move from an authoritarian to a participative mode as appropriate for the occasion. While it is expected that responsibility and decision making will be kept at the lowest possible level, the matter of competence must be considered. During the early stages the majority of skills and knowledge resides with a few people and, in order to ensure that organizational objectives are being achieved, those with the competence must be quite directive. The trick is to manage in such a fashion that necessary skills are transferred and the reins loosened at optimum rates. This issue has been one of the largest sources of frustration at Sarnia, and similar views have been expressed by other companies. In an organization based on "minimum critical specification" and minimum prescription, considerable

time must be devoted to activities designed to clarify roles. Such exercises are necessary at all levels, and should be extended to persons outside the immediate organization with whom there is regular interface, e.g., head office, engineering support groups, and union officials.

8. While there is considerable emphasis on modifying and improving management and supervisory social skills, it has been found that for these people to be effective and respected they must be technically competent. As a priority, efforts must be made to ensure a high level of technical development for management personnel.

9. It is desirable to establish criteria for evaluation purposes as part of the initial design, and also the data-gathering mechanisms.

10. Work in participative systems is not for everyone. Misfits can be very unhappy and disruptive. An effective way should be found to communicate to prospective employees what will be expected of them, and to improve skills in assessment of job applicants. In addition, an effective mechanism is required to identify and deal with those who turn out to be unsuitable.

11. In this organization there has been a tendency to focus job redesign at the "process operator" position, without equivalent attention being paid to the craft team and staff support groups. This is an area which needs addressing.

12. Since one is dealing with unknown systems, it is impossible to predict and provide for all events at the design stage. Those involved must be able to live with uncertainty, and be prepared to deal with unexpected issues as they arise. This means considerable risk taking by both union and management.

DIFFUSION

Inspired by the outcomes at the Sarnia Chemical Plant, Shell Canada has followed similar approaches in several other sites. Sociotechnical systems designs have been implemented at a gas plant, an in-site oil sands pilot unit, a fibreglass tank manufacturing facility, a lube and grease plant, a coal mine, a research and development laboratory, and a word processing department. Designs are currently under way for a new oil refinery, and a styrene-monomer chemical plant.

In recognition of the high resistance to change in existing organizations, most of the effort is now being directed to situations involving new facilities. These obviously provide greatest opportunity. With regard to the former, the strategy consists of: (1) providing information to key parties regarding results in "sociotech" sites, (2) offering suggestions regarding possible opportunities, and (3) awaiting signals of interest, opportunities/needs, and "state-of-readiness".

This activity is being supported in the company by a network of organization effectiveness consultants in key locations across Canada, and an educational program designed to improve practitioner competence and increase awareness throughout the organization.

NOTES AND REFERENCES

[1] The facility, built at a cost in excess of $200 million, is designed to produce 70 000 tonnes/year polypropylene and 91 000 tonnes/year isopropyl alcohol.

[2] In 1973, Shell Canada's Vice-President of Manufacturing commissioned a two-man study team to critically examine innovative approaches to organizational design. The study consisted of a review of industrial operations where programs had been undertaken to improve personnel effectiveness.

[3] These investigations resulted in a report, in January 1974, written by Norman Halpern and Warren Jarvis. The subject was debated at some length among senior managers in Manufacturing and Employee Relations, and eventually received endorsement from all. In September, 1974, Halpern was transferred from Winnipeg to Head Office in Toronto, as Consultant-Organization Effectiveness reporting to the General Manager, Refining and Chemical Plants to pursue the activities recommended in this document.

[4] With the general manager's sanction, a group was formed consisting of Halpern, Kaplan (Chemical Plant Superintendent), Bob Brawn (Sarnia Refinery Superintendent), Jim Halder (Sarnia Refinery Employee Relations Manager), and Stu Rees (Head Office Industrial Relations Manager). John Fisher, Refinery Manager, joined several months later, after being transferred into Sarnia from a similar position in Vancouver to replace the retiring incumbent. Lou Davis, Chairman of the Centre for Quality of Working Life at UCLA, was engaged as a consultant.

[5] This meeting (October 1975) was attended by the vice-presidents of Manufacturing, Chemicals, and Administration (Finance and Employee Relations), and all general managers reporting to them.

[6] It was envisaged that the task force would meet formally for a three-day period once per month.

[7] In addition, a Senior Management Steering Committee, consisting of four general managers (Refining, Engineering, Employee Relations, and Chemicals) was appointed to monitor, guide and sanction the task force activities, and generally serve as a sounding board as the design progressed.

[8] Neil Reimer was the National Director of OCAW. Shell's representatives were John Fisher (Sarnia Refinery Manager) and Stu Rees (Head Office Manager - Industrial Relations). Stu Sullivan, who was then Ontario Coordinator for OCAW and serviced the Shell local in Sarnia, was also present.

[9] The local president was Dick Perry.

[10] E.J. Miller, "Technology, territory and time: The internal differentiation of complex production systems". Human Relations, Vol. 12, No. 3, 1959. p.243-272.

[11] This was due to the tight integration of all the polypropylene plant units and the low surge time in the system.

[12] A. Cherns, "The principles of sociotechnical design". Human Relations, Vol. 29, No. 8, 1976. p.783.

APPENDIX I

SARNIA REFINERY AND CHEMICAL PLANTS PHILOSOPHY RELATED TO WORK DESIGN

The primary objective of Shell Canada Limited at the Sarnia Refinery and Chemical Plant is to obtain an optimum return on investment in capital and human resources, operating in a safe environment as a responsible member of the community, while being responsive to its employees' needs. It is believed that this objective can best be achieved by establishing and sustaining an organization and management system consistent with the following philosophy.

I. SOCIAL AND TECHNICAL INTERACTIONS

The Company recognizes that, in order to achieve its primary objective, it is necessary to give appropriate consideration to the design and management of both the social and technical aspects associated with its operation. The former is related to employees and encompasses such areas as organizational structure, levels of responsibility and authority, supervisory roles, communication networks, interpersonal relationships, reward systems, etc., while the latter deals with the physical equipment--its capacity, layout, degree of automation, etc. Although our operations involve a high degree of sophisticated technology which can be exploited to improve efficiencies, it is only through the committed actions of our people that the full benefits can be realized. The social and technical systems are interrelated and must be jointly taken into account to achieve overall optimization.

II. KEY CONSIDERATIONS FOR THE SOCIAL SYSTEM

Communications: Our operation is a tightly integrated system, functioning on a 24-hour 7 days-a-week basis, with associated support activities carried out on a weekday schedule. Involved are people at various levels and widely dispersed in locations both inside and outside the plant. The nature of our industry is such that delay in recognizing errors or need for operational changes, and taking corrective action is likely to result in substantial costs. Considerable consideration must, therefore, be given to the design and maintenance of a communication network that avoids lapses of attention and errors in observing, diagnosing and communicating or acting upon information. Accordingly, information should be directed to the individual capable of acting most promptly and for that individual to have the authority to take action and to be internally motivated to do so.

Individual Commitment: An essential ingredient for the success of our operation is a high level of individual employee commitment. Such commitment, however, can only be expected to develop if, in addition to provisions of satisfactory working conditions and terms of employment related to remuneration and benefits, other needs such as the following are met.

1. The need for the content of the work to be reasonably demanding of the individual in terms other than those of sheer endurance, and for it to provide some variety.

2. The need for an individual to know what his job is, how he is performing in it, and how it relates to the objectives of the Company.

3. The need to be able to learn on the job and go on learning.

4. The need for some area of decision making where the individual can exercise his discretion.

5. The need for the individual to know that he can rely on others in time of need and that his contribution is recognized.

6. The need to feel that the job leads to some sort of desirable future.

The relative significance of these needs varies from individual to individual and it is not possible to provide for their fulfillment of particular needs. Allowance must, therefore, be made to accommodate individual differences.

III. IMPLEMENTATION AND MAINTENANCE OF THE PHILOSOPHY

In developing a social system within our plant, the following are regarded as key criteria to be incorporated:

1. Policies and practices should reflect the belief that:
    - i) our employees are responsible and trustworthy;
    - ii) individuals are capable of making proper decisions related to their sphere of responsibility, given the necessary information and training;
    - iii) groups of individuals can work effectively as members of a team with minimal supervision, collaborating on such matters as problem solving (operational and personal) training, "hands-on" operations, maintenance, etc.;
2. Employees should be permitted to grow, advance, and contribute to their fullest potential and capability.
3. Compensation should be on the basis of knowledge and applicable skills, rather than the task actually being performed.
4. Communications should be open and meaningful. Direct communication across departmental boundaries between specific individuals concerned, without passing through intermediaries, is most effective.
5. Information flow should be for the purpose of ensuring that the most expeditious action is taken on the basis of that information, and should, therefore, be directed to those in a position to most quickly act upon it. Dissemination of such information to others should be only for purposes of appropriate audit and not for the purposes of decision making and exercise of control.
6. "Whole jobs" should be designed so that individuals are involved from start (premises, conception, economics, etc.) to end (evaluation of results).

7. Systems should be designed to provide direct, immediate feedback to the individual of the results of his actions in meaningful terms, to the fullest extent possible.

8. Work should be designed to permit the workers a maximum amount of self-control and discretion. They should be given authorities commensurate with position and held personally accountable.

9. A system should be developed which permits any employee to undertake any task required for the efficient operation of this plant, provided he has the skills to do the work effectively and safely. Artificial, traditional departmental or functional demarcation barriers should be eliminated and work allocated on the basis of achieving most effective overall results. The training and remuneration program must be designed accordingly.

10. Jobs should be designed and work schedules developed to minimize time spent on "shift".

11. A system and climate must be established for early identification of problem areas with problem solving occurring in a collaborative fashion.

12. It is necessary to have a climate which encourages initiative, experimentation, and generation of new ideas. Error situations should be reviewed from a "what can we learn" standpoint and not from a punitive one.

13. Status differentials should be minimized.

It is recognized that bringing about change in an ongoing operation is an extremely difficult task which must be approached realistically and patiently, because we are dealing with deep-rooted attitudes and practices. The most promising opportunities lie in "grass-roots" circumstances. Building a new facility adjacent to an existing one does not necessarily require that the practices of the older operation be extended to the new installation. Indeed, the new installation provides an opportunity to introduce changes to the older organization.

There are many factors which place restraints on the extent to which the above criteria can be embodied in our management systems. Our task will be to properly examine all our practices and determine strategies for overcoming these obstacles. Recognizing that there are risks involved, Senior Management endorses the principles and objectives outlined in this document, and supports and encourages their implementation.

APPENDIX II

COLLECTIVE AGREEMENT

Text of the collective agreement signed on
January 20, 1978

FOREWORD

The purpose of the agreement which follows is to establish an enabling framework within which an organizational system can be developed and sustained that will ensure an efficient and competitive world-scale Chemical Plant operation and provide meaningful work and job satisfaction for employees. Recognizing that there are risks involved and that there are many factors which can place restraints on the extent to which changes can occur, both Management and the Union support and encourage policies and practices that will reflect their commitment to the following principles and values:

- employees are responsible and trustworthy, capable of working together effectively and making proper decisions related to their spheres of responsibilities and work arrangement--if given the necessary authorities, information and training;

- employees should be permitted to contribute and grow to their fullest capability and potential without constraints of artificial barriers, with compensation based on their demonstrated knowledge and skills rather than on tasks being performed at any specific time;

- to achieve the most effective overall results, it is deemed necessary that a climate exists which will encourage initiative, experimentation, and generation of new ideas, supported by an open and meaningful two-way communication.

RECOGNITION

The Company recognizes the Oil, Chemical and Atomic Workers International Union Local 9-848 as the sole bargaining agency for all multi-skilled operators (hereinafter referred to as Shift Team Members) of the Shell Sarnia Chemical Plant at Corunna, Ontario.

PLANT COMMITTEE

The Company acknowledges the right of the Union to appoint or otherwise select a plant committee. This committee, on behalf of its membership, will be responsible for the negotiating of revisions to the collective agreement where applicable or any other matter which may be mutually agreed between the parties.

The Company agrees to recognize one (1) steward from each shift team and in addition one (1) steward from the craft team.

GRIEVANCES

There shall be developed and maintained a system to ensure the prompt and equitable resolution of problems at the Chemical Plant. In any event, to augment this system the appropriate provisions of the Ontario Labour Relations Act are available to the parties.

HOURS OF WORK AND RATES OF PAY

All employees covered by this agreement will follow appropriate work schedules that provide for an average basic workweek of 37 1/3 hours.

Where circumstances require shifts of schedules other than those in common, discussion between Management and the Union prior to implementation will occur.

Where a schedule change occurs as per the above whereby the starting or stopping time of an employee is altered by four hours or more, or his/her days off are changed, the employee will be paid, in addition to his/her regular salary, a premium payment of three quarters time on the first day of his/her new schedule, and his/her days off will become those shown on the new schedule. If an employee works more than 42 regular days over a cycle of 63 days as a result of a change of schedule, the additional hours will be paid at time and three-quarters. If a change of schedule occurs on a statutory holiday, the premium rate for the change of schedule will be paid on the first day worked on the new schedule, immediately following the statutory holiday.

All overtime hours will be paid at time and three-quarters.

A minimum payment for call-out work will be equivalent to four hours regular pay, except where, with previous notice, an employee starts to work two hours or less before commencement of his/her regular working days.

In addition to the regular monthly salaries outlined in Schedule "A", there shall be paid a "shift bonus" of 5% of the employee's equivalent hourly rate for each hour worked between 3:30 p.m. and 11:30 p.m., and 6% of the employee's equivalent hourly rate for each hour worked between 11:30 p.m. and 7:30 a.m. Team members working days who are placed on a schedule that begins before 6:00 a.m. or ends after 6:00 p.m. will receive 5% of their equivalent hourly rate for each hour worked between 4:30 p.m. and midnight, and 6% of their equivalent hourly rate for each hour worked between midnight and 8:00 a.m.

DEDUCTION OF UNION DUES

The Company will deduct from all employees covered by this agreement an amount equal to the regular monthly dues of the Union and remit the amount deducted, together with an itemized list, to the Secretary-Treasurer of the Union. Two changes in the deduction of dues in any calendar year, as notified by the Secretary-Treasury of the Union, will be permitted.

SENIORITY

Seniority shall refer to continuous service at Shell's Sarnia Chemical Plant, and for the purpose of establishing seniority of employees at Shell's Sarnia Chemical Plant, the first day of operation shall be deemed to be March 1, 1978.

In the event of a layoff, reverse-order seniority will be followed, provided that remaining employees are capable of fulfilling all job requirements. Re-call, within a period of one calendar year from date of layoff, shall be in accordance with plant seniority, subject always to the same provisions as outlined above.

VACATIONS

Every employee covered by this agreement will have the following vacation entitlement:

Completion of one full year's service - two weeks' vacation with pay

Completion of three consecutive years' service - three weeks' vacation with pay

Completion of ten consecutive years' service - four weeks' vacation with pay

Completion of twenty consecutive years' service - five weeks' vacation with pay

STATUTORY HOLIDAYS

Days designated as Statutory Holidays are as follows: New Year's Day, Good Friday, Victoria Day, Canada Day, Civic Holiday, Labour Day, Thanksgiving, Remembrance Day, Christmas Day, and Boxing Day.

Statutory holiday pay and pay for work performed on a statutory holiday are distinct and separate. Team Members required to work their regular shift and/or overtime on a statutory holiday will be paid at time-and-three-quarters their regular salary rate, in addition to receiving 8 hours statutory holiday pay.

SAFETY AND HEALTH

The Company agrees that the Union, in consultation with team representatives, may appoint two representatives on the Safety Committee and that these representatives shall be notified in advance of meetings of this committee which have been called for purposes of safety or to investigate accidents involved in injury to employees.

TERMINATION

This agreement shall remain in force for a period from the 1st day of February, 1978 up to and including the 31st day of January 1979, and shall continue in force from year to year thereafter unless in any year not more than 120 (one hundred and twenty) days, and not less than 30 (thirty) days, before the date of its termination, either party shall furnish the other with notice of termination of, or proposed revision of this agreement.

SCHEDULE 'A'

BASIC MONTHLY SALARIES

Team Members (Shift)	Basic Monthly Salaries	Hourly Rate Equivalents
Phase 12	$1 698	$10.47
Phase 11	$1 643	$10.13
Phase 10	$1 588	$ 9.79
Phase 9	$1 536	$ 9.47
Phase 8	$1 483	$ 9.14
Phase 7	$1 429	$ 8.81
Phase 6	$1 376	$ 8.48
Phase 5	$1 322	$ 8.15
Phase 4	$1 269	$ 7.82
Phase 3	$1 215	$ 7.49
Phase 2	$1 162	$ 7.16
Phase 1	$1 124	$ 6.93
Team Members (Craft) Journeymen	$1 551	$ 9.56

DESIGNING EVERDELL

by

Barbara Dresner

and

Jonathan C. Younger

ABSTRACT

The Everdell case describes a process of operational planning for the organization of a small gas plant in central Alberta. Nine months prior to start-up, the plant's operators and managers were involved in developing and modifying the operational plans. The process was based on an explicit philosophy of work aimed at maximizing the quality of work life. This case describes the planning process and the subsequent implementation of the plan in the new gas plant.

INTRODUCTION

In the summer of 1980, Everdell Gas Plant in Rocky Mountain House, Alberta, began to produce oil and associated natural gas. In most technical respects, the plant facilities were similar to others in the industry and location. The employee population was also generally representative; like other plants in the area, the 24-member work force was a generally young group, from rural backgrounds, most holding either a high school or post-secondary technical diploma.

What was different about Everdell was the design process leading to its start-up and, because of this, the goals and organization of the work. This difference was, for some observers, unmistakable. As one construction contractor put it, "You guys act like you've been working together for about twenty years".

For Esso Resources Canada Limited, as for most energy production companies, the design of work at production plants has evolved out of requirements of the technology. The typical site design develops out of a business plan that combines, in turn, a production plan and an engineering plan. The distribution of work, in terms of jobs and organizations, is based on principles of engineering design and economies of scale.

Planning for the human operations of new facilities has normally been regarded as a management task. Midway through the engineering design effort, a management representative is asked to develop a plan describing required manpower levels, skill requirements for the operation, work systems, and organization. This is reviewed at successive levels of management. Shortly before the plant is ready for start-up, the work force is brought on board and oriented. The organization turns to the tasks of equipment testing and commissioning. Start-up commences on the completion of construction, although it typically takes some time before the facility moves into full swing.

In the Everdell plant, management took a different approach to operational planning. As before, a manager prepared a preliminary operations plan, and reviewed the plan with his management. However, over a nine-month period prior to start-up, this plan was further developed and modified by plant management and a joint team of operators destined to work in the new plant. This design team used the original plan to create a design for the organization of plant work. Rather than build from pre-established manpower levels and skill requirements, their principles of operations planning were based on an explicit philosophy of work aimed at maximizing the quality of work life. The work environment they produced was shaped out of a set of business goals that included both productivity demands and employee work life concerns.

THE TEAM CONCEPT

The managers responsible for Everdell decided to fashion the work design around a team concept that emphasized the development of a cooperative, multi-skilled work force. In contrast to the increasing specialization of work found in most plants, operators and maintenance personnel would be expected to work as a single team, carrying responsibility on a shift basis for the whole facility.

Most of the energy behind the team concept came from the manager responsible for a number of production facilities in central Alberta. His image of an effective operation was rooted in his early experiences where conditions and less sophisticated technology had forced cooperation among workers, and their learning a variety of skills. This experience led him to believe that a multi-skilled work force would enhance both productivity and employee satisfaction. He pointed out, "We've had some weak spots over the past years. When I ask myself why, the answer is always that we haven't developed the people enough."

Operations management had a number of particular expectations for Everdell. One was that the multi-skilled team would reduce the need for slack resources, particularly in maintenance. Small plants like Everdell have a limited number of mechanical and instrumentation maintenance staff on site. This required that the operating group have the skills to provide effective back-up.

Management also hoped that the team concept would improve the quality of operator decision making. As the group operations manager indicated,

> By cross-training, you'll probably end up with a better operation. If you have a problem in the plant, it often requires some sort of action in the field, and vice versa. If the guy running the plant also understands what is going on in the field, he will probably make better decisions.

A third, and related, expectation was that the team concept would reduce traditional conflicts among field and plant operators, and between operators and maintenance staff. Lack of cooperation within and among these groups was frequent in larger production plants; in a small plant, it could be disastrous. By cross-training, and by giving a single shift group full responsibility for both plant and field, it was hoped that the negative effects of territoriality could be reduced.

Finally, staff retention was a concern. Plant effectiveness depended on a skilled and experienced work force. Management believed that the increasingly well-educated and mobile work force in Alberta would find traditional operations jobs boring and routine. Compensation limits placed on these jobs would also add to the likelihood of attrition. Multi-skilling was seen as a vehicle for increasing job variety[1] and employee potential for advancement.

To the group operations manager, trying the team concept was worth the relatively low risk. "The plant is going to run either way. Its a new project and, if it doesn't work, it can always default to the traditional organization."

Management was clear that Everdell's success depended on a willingness of both plant management and workers to make it work. This meant assembling a work force that would be open to a philosophy of increased responsibility, and getting plant management to commit themselves to open the decision-making process.

Hiring began with the plant foreman and crew leader. Both were selected on the basis of competence and support for the team concept. They believed that individual operators were underutilized in traditional work designs, and they saw Everdell as an opportunity to practice a more participative management philosophy. As the crew leader observed,

> I've lived under supervisors who didn't tell you anything. They didn't have a clue what was happening so anything you did was wrong. I've lived under supervisors who told you how to do everything and that was the only way you did it. I've lived under supervisors who had everything bolted down shut and even if you wanted to do something you couldn't because you couldn't get to the tools.
>
> I figure that if a person is hired and he is given the job then he should be responsible and trusted enough to do the job. There shouldn't be any doors with locks. If you give men jobs to do and let them use their own initiative, many times they will come up with better ways of doing it, ways you never even thought of...

Management also pushed for the early selection of operations and maintenance staff, for planning and training purposes. Field training of plant operators was essential in order to begin functioning without the traditional barriers of separate plant and field operations. Most of the Everdell employees were recruited from other production facilities in Esso Resources, and all were aware they would transfer to Everdell on a full-time basis before start-up. During the months of Everdell design following their selection, these employees were seconded on training assignments, and were brought in regularly to assist in the design effort.[2]

THE DESIGN PROCESS

The first step in the design process w s the creation of a design team to carry on the planning. Management saw a number of clear advantages to a joint worker and management team. A participative approach could tap the ideas of both management and workers, and encourage greater commitment in the development and implementation of a plan. The design team could also assist in the development of the interpersonal skills needed to make the team concept work. That is, the committee was the appropriate vehicle for modelling the philosophy underlying a team approach.

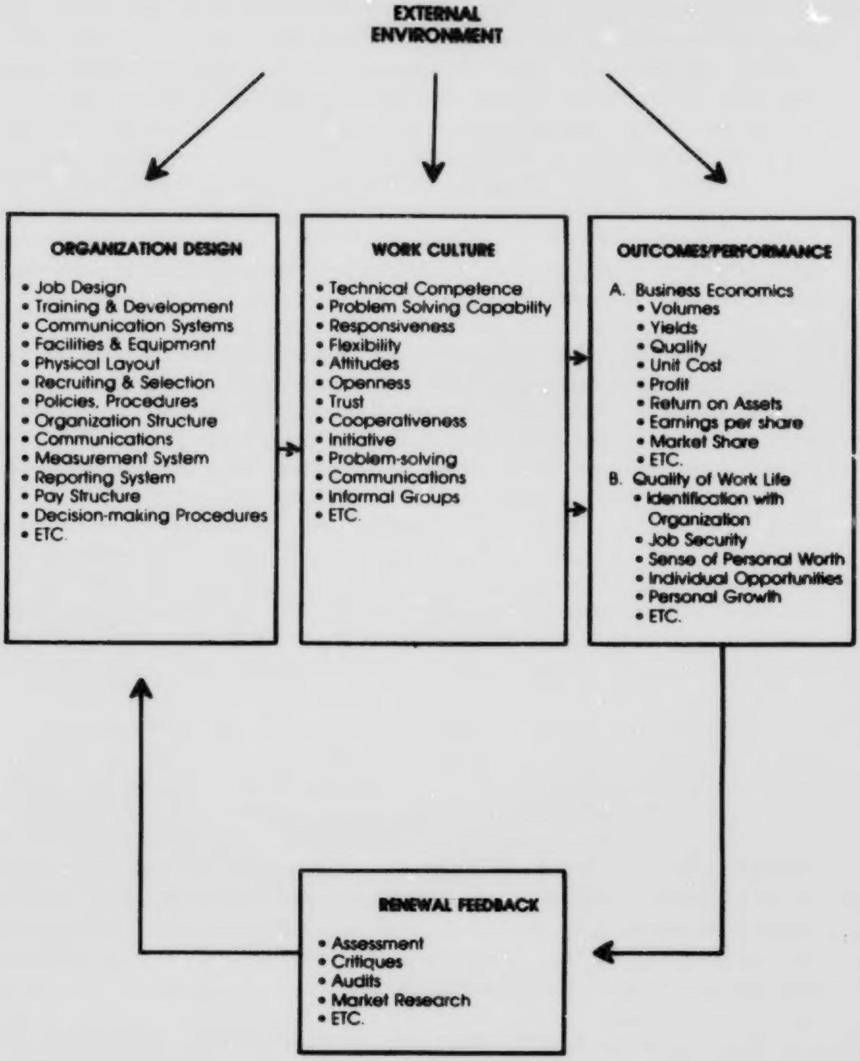
Members of the design team were selected at the first plant staff meeting, held in September 1979. At the time, approximately two-thirds of the work force had been selected for positions at Everdell and were training in other operations. The meeting began with an update on the construction schedule, then turned to a description of the operating philosophy and the proposed planning process. A group discussion of goals for the workplace and design method followed. The staff were then asked to select representatives to a six-person design team that would include the area manager, foreman, and crew leader.

The design team began meeting shortly afterwards, in mid-October. Their planning approach followed a method articulated by Walton.3 In brief, Walton's model calls for an initial definition of the goals or desired "outcomes" of the operation, and includes both business and QWL goals. This is followed by the definition of the qualities of the "work culture" required in order to meet the goals. Actual design specifications follow, and include the design of work, schedules, training, compensation, etc. Table I provides an outline of the process.

The design team's method of identifying outcomes or goals was a combination of data gathering, brainstorming, informal consultation with work force members, and more formal consultation with senior management. After a number of sessions, the outcomes were reviewed with the group operations manager, who suggested some important

TABLE I

A PLANNING MODEL


EXTERNAL ENVIRONMENT
ORGANIZATION DESIGN
• Job Design
• Training & Development
• Communication Systems
• Facilities & Equipment
• Physical Layout
• Recruiting & Selection
• Policies, Procedures
• Organization Structure
• Communications
• Measurement System
• Reporting System
• Pay Structure
• Decision-making Procedures
• ETC.
WORK CULTURE
• Technical Competence
• Problem Solving Capability
• Responsiveness
• Flexibility
• Attitudes
• Openness
• Trust
• Cooperativeness
• Initiative
• Problem-solving
• Communications
• Informal Groups
• ETC.
OUTCOMES/PERFORMANCE
A. Business Economics
• Volumes
• Yields
• Quality
• Unit Cost
• Profit
• Return on Assets
• Earnings per share
• Market Share
• ETC.
B. Quality of Work Life
• Identification with Organization
• Job Security
• Sense of Personal Worth
• Individual Opportunities
• Personal Growth
• ETC.
RENEWAL FEEDBACK
• Assessment
• Critiques
• Audits
• Market Research
• ETC.

changes. The resulting statement was left in draft form, as a reminder that, over time, it could well be necessary to amend or update the goals.

The articulation of a work culture for Everdell was more time consuming and difficult for the design team. The process had a start-stop quality frustrating to design team members. It was difficult for the team to think positively rather than negatively (e.g., "We don't want..." versus "We want..."). As well, it was difficult to conceptualize culture in terms of workplace behaviour. Again, the process was a combination of brainstorming and informal consultation. At a group meeting, the outcomes and culture statements were reviewed with the total Everdell work force. Tables II and III summarize this material.

Most of the design team work was devoted to moving from goals and culture to design of work systems and actual jobs. The first step was simply the identification of the areas for design: organization, jobs, schedule, training plans, etc. Next, a critical path was established, arranging the tasks by priority and logical sequence. Based on this, broad policy statements were developed for each task area, building in cultural criteria for design.

The design team soon realized that not all policies would be completed in time for start-up, nor would all tasks be translated from policy to plans. In fact, much of the design work was not completed before start-up. As the team saw it, part of the problem was time and experience--most of the members felt that the team was brought together too late. Once the plant was engaged in staffing and start-up activity, it was difficult--both practically and psychologically--to return to design. As one team member put it, "It's difficult to go back to the drawing board when you're up to your ass in alligators".

The Design Team

For all of the design team members, the work of designing the human operations of the plant represented two distinct challenges. The first was establishing the

TABLE II

OUTCOMES

1. We will produce at planned production allowables, without sacrificing other objectives — oil, gas, condensate.
2. We will control total expenses to obtain a maximum rate of return.
3. We will optimize liquid product.
4. We will strive to maintain zero per cent flare.
5. Everyone feels committed to and responsible for the success of the total operation.
6. Everyone who works at Everdell will be able to effectively communicate the technical and work innovation aspects of the operation, enabling the transfer of experience to other areas.
7. The health and safety of employees and the public is our major priority for the operation.
8. Esso and its employees share a commitment to the continuing development of Rocky Mountain House and the surrounding community.
9. There is open and responsive communication among all employees.
10. Everyone will have the information they need in order to do the job.
11. All employees will be fairly compensated for their contribution.
12. Employees are encouraged and assisted in their efforts to further develop their work-related skills and competencies.
13. We will recognize the importance of private life and its impact on an employee's ability to perform in the workplace.

TABLE III

STATEMENTS

1. Trust
2. Informed of day-to-day activities
3. Responsibility
4. Trained (competence)
5. Commitment
6. Safety conscious
7. Knowledgeable
8. Enjoyment
9. Access (to information, management)
10. Pride
11. Teamwork (willingness to help)
12. Respect for company and fellow employees
13. Organized and well planned
14. Good housekeeping
15. Positive attitude
16. Concern for one another
17. Fairness
18. Open communication
19. Cooperation with engineering and other areas
20. Efficiency
21. Flexibility
22. Confidence
23. Problem-solving capability
24. Initiative

TABLE IV

DESIGN CATEGORIES

1. Selection
2. Training
3. Job Procedures
4. Wages/Compensation
5. People scheduling
6. Transportation
7. Communication
8. Representation
9. Role of Supervisor
10. Regulations
11. Safety
12. Evaluation of performance
13. Naming of positions
14. Information systems
15. Reporting procedures and documentation
16. Procurement and materials management
17. Construction
18. Community relations
19. Environmental health
20. Emergency procedures
21. Library
22. Working relations with other departments
23. Organization structure
24. Budget
25. Start up
26. Maintenance scheduling

goals, culture, and design aspects of a new facility. The second, closely related to the culture they wished to create, was learning to work together.

At their initial meetings the team members were not sure how to work together. Individuals were relatively new to one another; their experience in this kind of work was slight, and they were at different organizational levels. As one observer commented,

> The guys had to learn a fair amount about how to work well together. They had to learn to listen, rather than anticipate their turn to speak, to question ideas without putting the speaker down, and to work across hierarchical lines without fear of evaluation. They had to learn that different perspectives are legitimate when the issue is values, and the task is putting values into practice.

The initial design team meetings were marked by difficulties in staying on target. Members felt overwhelmed by the task of planning how work would be carried out at Everdell. At first, they looked to the consultants and management team members for direction. As one team member observed, "It seemed such a vast project for unskilled people to be doing".

One central benefit of the Walton model was the common language and framework it provided. The concept of "culture" was particularly important as an organizing concept, and a common theme to guide the development and testing of design alternatives. Even so, some design team members had difficulty. One mentioned, "I got hung up because I didn't know how to put words around an idea I had".

The impatience of the group hampered the team's activity. Design team members felt frustrated that the work was progressing slowly, and tried to speed up the process by giving individual assignments to members. This technique was initially unsuccessful, because of a lack of common perspective: "We were going off half-cocked delegating homework. We'd write something up and bring it back to the next meeting. For hours we would argue how to reword it."

During the initial phases of design team work, the group was dependent on the consultants for task direction and help in working as a group. Eventually, they started to turn to one another for help. This shift from dependence on the consultants to greater team interdependence was precipitated by an occasion when the consultants had to leave a meeting early. The angry confrontation that ensued brought the group's frustration to a head. As the consultants later recalled,

> The design team discovered they were all frustrated. Individuals found out that it wasn't just them who felt under pressure and felt dependent on the consultants. At the next meeting, it was apparent that the group had reasserted ownership for the process and its products. Finding out they were all in the same boat seems to have freed them up to find support from one another, rather than the consultants.

Another important consequence of this event was an increased understanding of how Everdell would work in practice. "As we began to work better together, the work made more sense. And we got more efficient at it. Eventually, we got a pretty good sense of how the system, itself, was going to work."

In many respects, the design team itself provided a model for the Everdell operation. As one design team member observed, there was a strong parallel between the design team's development as a cohesive and well-functioning group, and the development of teamwork in the plant itself:

> At first, they'll be clumsy and there will be friction between people. In the early design team meetings we would sometimes pass over so-and-so's well thought out ideas when we were brainstorming, because he was less boisterous than the rest of us. After a while he tended to stop participating

> because he felt nobody was interested. Eventually, we were able to draw people out. I'm sure that we'll find the same thing in the plant. People who are not vigorous contributors are going to need help getting their ideas out. The more ideas that we use, the better chance we have of coming out with a good solution.

Facilities Design and Relations with Engineering

Even before the design team was organized, the area manager was convinced that the work force could contribute to the physical design of the plant. To facilitate their participation, he asked the engineering project manager to commission a scale model of the facilities, for inspection by the then available work force.

Everdell personnel looked over the model twice, and were encouraged to ask questions and to identify problems or needs for change. Approximately forty suggestions were acted on, most related to safety, efficiency, or process monitoring. According to the area manager, the cost of producing the model was well justified by the opportunity to make appropriate design changes prior to construction. The model also served an important secondary function as a training aid for the work force.

Work force involvement in the physical plant design was not without problems. A major issue was the lack of communication and mutual understanding between the engineering project team and the design team. In part, this resulted from the absence of a satisfactory mechanism for coordination and mutual problem solving between groups. While physical plant reviews were held periodically, only the management members of the design team were invited to attend. Nor was an opportunity created for the engineering project members to join the design team in its deliberations. Over the course of the project, little information was given to the engineering staff about the outcomes or culture defined for Everdell, apart from the business expectations held for the plant.

The absence of effective links between the engineering team and Everdell work force reflects aspects of the larger production organization. The mandate of the engineering function has traditionally been to design and build the facility. The operations mandate has been to run and maintain the plant once built and accepted. The design of physical facilities and human operations have historically been regarded as parallel, rather than intersecting efforts.

The different mandates of these functions, in turn, point to the different objectives of the two groups. The engineering project team was concerned with building a plant safely, within budget, and on schedule. The design team's major objectives centred on operability, and the impact of the technical design on work design and quality of working life.

Operators on the design team felt the engineering staff gave too much emphasis to construction cost. As one put it,

> The engineer is here for three months, and he's gone to another project. He saves the company money, and he's a hero. But because he saved the company money, we have to break our backs doing things because the plant wasn't designed that well.

For the engineering project manager, the experience of Everdell raised a number of thoughts about conflicting objectives, and how to address them in future projects. He noted,

> Cost and schedule are only one of the design team's objectives, but they are my only objectives. That's the heart of the problem. If they are going to tamper and influence my objectives, then I should have some say in theirs.... Conflict of goals is not a good thing. Maybe the design team and the engineering project team should have spelled out common goals and explained to one another our different interpretations and methods for getting there.

Everdell Work Force Participation

As indicated in the previous section, participation was not limited to members of the design team. Management and the design team felt it essential to share the experience of design with the work force. They firmly believed that responsibility for the total design process had to be extended to the entire employee group.

This was accomplished by two means. Review meetings were held periodically to bring the staff up to date on design team activities and progress. Members of the design team also consulted with staff members on an ongoing basis. For example, as the design progressed, team members worked with other Everdell operators on the development of specific plans such as the selection of new employees. An interview team was trained by members of the human resources department. They then conducted the interviews for those operating jobs not yet filled. By this process, recruits were also informed of the work philosophy guiding Everdell, and could choose accordingly.

The attempt to build total staff involvement was only partially successful. During the early stages of design, distances between individuals precluded significant contact, except at scheduled meetings of the full staff. Later in the design process, precommissioning work kept the employees busy. A design team member describes one review meeting held soon after additional employees had been hired.

> We explained what the design team had been doing, and asked if it was still O.K. Did they still feel they were giving enough input? The new bodies looked at us and said, "What are you talking about? We don't even know what's going on." The old bodies that were there said, "We're too busy to worry about what the design team is doing. Go ahead. You know it, now stay with it."

One problem in building full staff participation, then, was the flow of employees into the operation. This was particularly true during the actual start-up, when employees from other areas were temporarily seconded to assist in the commissioning process. Members of the work force who were present at the initial meeting in September tended to participate more, and to feel more a part of the design effort. Those hired later on were less active, and felt less involved. The problem was not fully resolved, despite circulation of design team meeting minutes and other documents among new employees. In retrospect, the assimilation might have been enhanced by purposeful orientation meetings and involvement of new employees in design-related activity.

The member's comment above also suggests that the work force generally had great confidence in the design team. We believe that this speaks well for the selection process used to form the team. Also, it reflects the continuing efforts of the design team to involve people through consultation and task activity. By and large, most employees seem to have been more satisfied with their level of involvement, and the representation of their interests, than members of the design team believed.

SOME RESULTS OF THE DESIGN PROCESS

The design team members and employees suggested a number of innovative changes to the original operating plan.

One was clearly the organization of the work itself. In the original plan, field operators worked only on day shift, while plant operations maintained a continuous day-and-night responsibility. The new plan combined field and plant operations into a single shift operating on a rotating 12-hour schedule. The shifts were led by a senior operator serving as lead hand. This structure both allowed multi-skilling, and increased coverage of the field activity. Thus, a significant savings in overtime became possible.

Organizational innovation also extended to management. The design team established that operations and maintenance departments would report to the crew leader. This further assisted in the integration of the two functions.

A third innovation was the training plan developed to support multi-skilling. The design team identified the skills that would be required for the next several years of plant operation, and forecast the numbers of personnel with these skill levels who would be needed. This significantly aided the decision process governing who could receive what training, and when it would occur. Training requirements would, as well, be reviewed at regular meetings of the whole work force, which were convened between shifts. It was hoped that application of this form of democratic process would avert potential dissension and perceptions of management favoritism.

A related innovation was the development of a schedule to support the cross-training plan. To develop the schedule, the design team worked with a staff member of the corporate systems department. The design team articulated the desired outcomes of the schedule (e.g. eliminate the need for more than three consecutive nights on shift, provide all training during day shifts, provide at least four days per month as on-site training days). The systems staff member developed the alternative schedules and these were reviewed with the total work force.

A fifth major innovation was the creation of regular work force meetings. Their purpose was to keep individuals informed of current events, to provide a forum for problem solving and dialogue, and to ensure regular opportunities for contact between members of the Everdell plant despite shift work.

Finally, physical changes to the plant design were made. These chiefly affected safety, efficiency, and process monitoring (e.g., placement of walls and columns, positioning of equipment and meters). Changes were also made to the layout of the plant office building. In some respects, the latter changes were cosmetic. In other cases, walls were moved or offices shifted to better reflect goal and culture specifications.

Not all of the plans established by the design team were implemented. The most contentious issue was compensation. The design team developed a "pay for knowledge" system that provided for incremental pay increases as work force members learned new skills. Operations management rejected the proposal in favor of the job evaluation method and pay scale used in other operations. Management was concerned that a perception of special treatment would create wider problems.

The Everdell work force was clearly disappointed with management's decision. For them, compensation change was at the foundation of commitment to innovation, and the decision a symbol of management's lack of support for the multi-skill concept. As one member put it, "It seemed management was behind the team concept until it was going to cost them money". Another person commented, "Management isn't doing their part. They could have come back and said, 'What do you think of this alternative?' At least that would have given us something else to turn to."

Start-Up

Everdell's official start-up was in July, 1980. The area manager had hoped for a particularly smooth start-up to illustrate the benefits of early operator involvement and training.

Start-up, however, fell short of that goal. Two problems prevented an easy shift from commissioning to on-line production. One problem was mechanical, involving difficulty in moving some of the equipment on line. Another problem was the mix of skills, and the member of personnel needed for start-up. These latter requirements had not been adequately identified in planning. According to the group operations manager,

> At start-up, the problems we had were basically all in the plant. To deal with these problems, we needed 80% plant and 20% field experience. Because we talked about the universal operator, the key operator on some shifts was experienced in the field and only had limited plant knowledge. The idea of cross-training was aimed at an ongoing operation, which is appropriate because

start-up is only a month long from an operations point of view. However, some of the guys felt that we were hampered during start-up by not having the specific skills of a plant and the specific skills of the field arranged on shift.

Design team members entered start-up enthusiastically, perhaps more than other members of the work force who were less involved in the design. As one individual put it, "I haven't had a day off in a month, and here is somebody who is enthusiastic about a schedule".

Notwithstanding the difficulties of the start-up, operators reported that people tended to work more effectively together in Everdell than at other plant start-ups they had experienced. One employee noted,

> During start-up, operators pitched in and helped each other with a problem, even though it may not be one they particularly relished working on. We guys in the instrumentation group spent a lot of time doing operational-type things. In other plants, that was never done.

Another operator also commented, "When things started to go wrong in other start-up situations I've been involved in, everybody started crapping on everybody else. There wasn't much evidence of that at Everdell."

The reports of Everdell members suggest that the design process and organizing mode helped to create a less troublesome start-up. One factor that apparently aided this result was a series of team-building workshops, involving the total work force, conducted just prior to start-up. The purpose of the workshops was to increase individuals' understanding of one another, to improve their skills in conflict resolution, and to provide a learning environment for exploring how to translate the stated culture of the work place into individual and group behaviour.

It is more difficult to assess the direct impact of organization and job design on the start-up. However, as one operator suggested, "If you have drawn lines between the different job families, and there are anxieties because of start-up, the walls and divisions tend to become really pronounced".

A third factor that appears to have made a key difference in start-up was the behaviour of plant management. Several members of the work force identified management accessibility as critical in reducing the stress of start-up, and in improving responsiveness to problems. One member of the design team commented,

> I can go up to the foreman and say that I think we have a problem here and suggest something. He either says yes, he thinks it's a good idea, or maybe no, he thinks we can do it this way. I respect that a lot. If you do something wrong, you are told why, then the problem is analysed. I can say what I want to say.

Another operator, also referring to the foreman, said,

> The management is much more open here. In other operations, the foreman was the principal and I was the little student. I was nervous as soon as I walked into his office. Here the foreman is one of the work force. I've always been nervous around bosses. Not here. You feel he won't come down with a hammer every time you do a little thing wrong.

Survival and Diffusion

The experiences of other organizations[4] has pointed out the dangers of isolating new work systems, which remove managerial sponsorship and "sheltering", or create the conditions for destructive competition with other operations. The potential for both was particularly strong in the case of Everdell because of its visibility and vulnerability as an experimental project.[5]

Operations management realized that the survival of a small and new system like Everdell depended on broad organizational understanding and support. The strategy for building the needed support focussed on education, and the positioning of the project as an operations-wide experiment. Four specific sets of activities were inaugurated.

The first was to build a strong link between the project and the Joint Industrial Council (JIC). The JIC is Esso Resources' worker management forum, bringing area and senior management together with elected wage earner representatives from various operations. Early in the planning of Everdell, the JIC was given a presentation on the project, and the JIC was kept informed periodically of progress in the development of the design.

A second aspect of the strategy was the familiarization of other area managers with the Everdell project, and with the general area of QWL. The division's operations manager sponsored a two-day seminar for the full management group, to introduce basic concepts and the experience of other organizations, and to place Everdell within a broader context of work innovation. In addition to using case studies of other organizations, the seminar explored two cases of consultant-unassisted work innovation from within Esso Resources. To judge by the comments of the participants, the seminar was highly successful in achieving its objectives.

A third aspect of the strategy involved informal follow-up to the seminar. Reading material relevant to QWL was distributed to other production facilities. Other less visible work experiments were identified so that their sponsors could share experiences, learnings, and the "limelight". This served to achieve two goals: to diffuse the visibility of Everdell as the single authentic work systems innovation in the organization, and to exploit the potential of the seminar as an opportunity to begin other projects. At this writing, work redesign activities have been initiated in a number of operations facilities.

Finally, a fourth aspect of the strategy was to document the design process used at Everdell. Soon after start-up, the first author was contracted to interview all Everdell work force members and relevant managers, and to record the experience and method of designing the work system of a new facility. The report produced was distributed across the operations system, and given wide circulation in the engineering division.

A PERSPECTIVE ON EVERDELL

At this writing, the Everdell plant has been running for less than a year. Some of the start-up problems have been satisfactorily resolved. Others remain. Although formal start-up--the commissioning of the facilities--is a relatively brief period, the start-up mode in oil and gas production plants tends to persist over a much longer period, as bugs in the system are identified and addressed. Therefore, it is difficult to determine whether the work system designed for Everdell will have significant productivity effects, or remain intact over the transition to full operational status. The only statement we can make with confidence is that the work force remains enthusiastic about the prospect of high plant performance, and is determined to make the system work.

In this section, we would like to comment on the design process and solution developed for the Everdell plant, and its implications for other production facilities. By this, we hope to engage the reader in a dialogue about what was done, what might, in retrospect, have been done differently, and where the Everdell project fits on the map of work systems experimentation.

The most certain observation we can make is that Everdell is less "glamorous" than many other innovative work designs in the literature. In some organizations with a longer tradition of QWL, much greater strides have been made in sociotechnical design.[6]

Only limited change was made to the technical system of the plant. Reviews of the plant model did, however, produce a range of modifications to enhance safety, efficiency, and process monitoring. Office architecture was changed to better support design goals and the work structure. It should be remembered that the design team had no significant opportunity to review and address more fundamental aspects of the production process, the type of machinery used, or the degree and limit of computerized control. Both time and the nature of the technical system precluded more than marginal technical systems change.

This raises the question of what category of innovation best describes the Everdell work design. We would tentatively describe it as *sociocultural*, as distinct from sociotechnical design.

This sociocultural development at Everdell took advantage of opportunities to influence the technical system, but by and large assumed it as a given. Instead, the focus of the design effort was to instill a sense of "work community". The design--organization, work system, training plan, schedule, and even the architectural modifications--should be seen as a means of establishing a spirit of whole-plant responsibility, the knowledge and skill base required for individual competence and mutual help giving, and a physical environment supportive of organizational goals. The design team itself might be understood as both a catalyst and a model for the structuring of work community in Everdell. Sarason's[7] definition of community as a "readily available, mutually supportive, network of relationships" aptly describes the implicit agenda of the design process. Certainly, the actions of the design team and their vigilance in building maximum work force participation suggest that the building of a community in Sarason's terms was a major issue.

Everdell was a sociocultural design project at least as much by default--and lack of opportunity--as by design. This will likely be the case in any organizational system first experimenting with work improvements guided by QWL goals. If so, it is important to point out the vulnerability of such efforts. The survival and diffusion strategy for Everdell has been emphasized in our descriptions because of its importance. Designs such as Everdell are not well-entrenched. As the group operations manager described them, they are low risk, at least in terms of the capital or material cost of defaulting to traditional work structures. As a consequence, the organization is less willing to tolerate poor starts and false steps.

This observation raises a question of procedure and strategy for the manager or internal consultant embarking on initial work-improvement efforts. The experience of Everdell provides three guidelines.

The first is to provide ample time for the design process in any given project. Everdell suffered most from an incomplete design. The project underestimated the amount of time needed to move from the articulation of outcomes and culture goals to their translation into specific design terms. It underestimated the time needed for the design team to learn to work effectively together. And it overestimated the willingness and ability of the work force to return to the design process after start-up of the facilities.

A second area for improvement on the Everdell experience involves contracting with management. The project underestimated the amount of commitment management had made and the amount needed. This was most obvious in management's resistance to the "pay for knowledge" scheme developed to provide incentives for multi-skilling and task flexibility. The consultants and area manager assumed, from discussions, that the design team had significant freedom to be innovative. Management, for its part, assumed that the design team had licence only to recommend. Had the ground rules been more clearly stated from the start, a mutually acceptable solution to the issue of pay might have been developed. At the very least, bad feelings might have been avoided.

The Everdell project also prompts an observation on where and how to begin. It cautions the manager or consultant to avoid "flagship" projects when possible, and, when not possible, to minimize the "flag waving" associated with the project. With hindsight, Shepard's[8] "light many fires" rule seems a more useful approach. Accordingly, the survival and diffusion strategy developed in support of Everdell might have preceded, rather than followed, the initiation of design. Education, and the collection and dissemination of naturally occurring innovations (versus consultant-assisted ones), would have come first.

The central point here is particularly relevant where the sponsoring organization has little previous experience with QWL efforts. This is the importance of building a context for innovation that is familiar and owned by the organizations, one that firmly connects the enterprise with its own successful experience.[9] There are many reasons a work innovation can become vulnerable. The intrinsic vulnerability in designs such as Everdell becomes most evident when the innovation is portrayed as different from what the organization has been doing, and is given inappropriate attention.

NOTES AND REFERENCES

[1] J.R. Hackman and G.R. Oldham. Work Redesign. Reading, Addison-Wesley. 1980.

[2] Management also believed that consulting help would add to the success of the Everdell design process. The second author was brought into the project as an internal consultant. He, in turn, brought in other human resources expertise and external consulting help at different points during the project. One external consultant, in particular, worked with the design team throughout most of its activity. This was Michael Sonduck, formerly corporate manager of work improvement, Digital Equipment Corporation.

[3] R.E. Walton. "Work Innovations in the United States." Harvard Business Review, July-August, 1979. p.88-89. Also see, R.E. Walton. "Establishing and Maintaining High Commitment Work Systems," in J.R. Kimberly and R.H. Miles (eds.). The Organization Life Cycle. San Francisco, Jossey-Bass. 1980. p.208-290; and H.F. Kolodny, C.P. Johnson and W. Jeffery. Quality of Work Life: Job Design and Sociotechnical Systems. Ottawa, Labour Canada. 1979.

[4] See note 3. Also L.E. Davis and A.B. Cherns (eds.). The Quality of Working Life, Vol. 2: Cases and Commentary. New York, The Free Press. 1975.

[5] In one highly successful manufacturing company, with a long history of QWL innovation, an internal review of programs clearly made the point that "QWL programs seen as experiments are in trouble".

[6] See note 4.

[7] S. Sarason. Quote taken from an invited address, Department of Psychology, State University of New York at Buffalo, Fall, 1972.

[8] H.A. Shepard. "Rules of Thumb for Change Agents." Mimeo, undated.

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QWL AT PETROSAR: A CASE STUDY OF A GREENFIELD SITE

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ABSTRACT

This case describes the steps in implementing a participative management philosophy. A team system of management was the strategy chosen to create an organizational climate and system of operations to support and reinforce the way jobs were designed. This required a considerable degree of planning for the "minimal critical specifications" for designing jobs, working conditions, and personnel policies, so that they would be consistent with the participative philosophy. This was especially complex, because the planning had to be done without the input of employees, since none were yet hired.

INTRODUCTION

Petrosar was created in 1974 as a joint venture between Polysar (40.2%), Dupont (20%), Union Carbide (20%) and the Canada Development Corporation (19.8%). The primary purpose of the plant is to supply its shareholder-customers (and others) with petrochemical feedstock derived from crude oil. The shareholder-customers then further refine or process the feedstock and sell it to manufacturers. In this way, the Petrosar plant acts as an intermediary processor in the production chain leading from crude oil to various types of industrial chemicals.[1]

The Petrosar plant was designed to use the most modern technology and to operate at a world scale level of production so that it could supply its shareholders and other customers with products at internationally competitive prices. By the end of 1980, the total permanent employment was approximately 740 and the capital cost had exceeded 700 million dollars--an approximate ratio of one million dollars capital cost per employee.

The plant is located at Corunna, Ontario, part of the Sarnia "chemical valley" complex of refineries and petrochemical plants. For decades, the chemical valley has been well-known for offering wages and working conditions superior to any other region in Canada. This means that the new plant had to provide wages and working conditions equal to or better than others to attract and keep employees.

Petrosar is described as a "greenfield site"[2] in that it had no corporate or organizational existence prior to 1974. The managers hired to create Petrosar had an unusual opportunity to establish a management philosophy and organization design without any burdens of precedent or historical constraints.

Petrosar's founding shareholders gave no direction for designing the organization, and left this task to the new president. The new president happened to be a firm believer in the value of people as the "ultimate asset", of an organization, and believed that participative management was the most appropriate way to relate to employees. A key factor in putting these values into action was the recruiting of a small task force of top managers (with similar "people" values) to design and launch the new organization. Two members of this initial task force were the director of personnel and the manager of employee relations. The early hiring of top personnel executives and their active participation in the top management task force can be taken as an indication of the seriousness and commitment of the president to establishing an organization based on his values.

Design Objectives. The initial task force defined two overriding objectives and related policies to guide their planning for the design of the new plant. These objectives and policies were as follows:

Objective I. The firm must continue to operate as a healthy enterprise.

> Policy a) - To this end, the physical facilities must be soundly designed and constructed.
>
> Policy b) - The firm must be closely oriented to its revenue sources in the marketplace.
>
> Policy c) - The administrative and organizational systems must be carefully designed and properly installed.

Objective II. The firm must have experienced, well-trained, competent people at every responsible position in the organization.

> Policy a) - The firm will use a participative management style which encourages and obtains contributions of people from all levels and from a complete spectrum of the organization's activities.
>
> Policy b) - Participation will be used for decision making, for operations control and for ideas on improvement.

From these objectives and policies, it is clear that a participative management philosophy was part of a strategy intended to build a high performance organization in terms of production and earnings. This choice represented a significant experiment on the part of top management, and reflected considerable faith in the efficacy of participative team management.

Once the basic objectives had been determined, the next project for the task force was to plan an overall strategy for both the nature of the quality of working life system in the plant and the means to implement the system. This required developing a management philosophy, designing the plant operations, jobs and support systems, and establishing an approach to recruiting, training, and monitoring of results.

This paper reviews the choices made and actions taken to carry out this large, new project.

THE MANAGEMENT PHILOSOPHY

The management philosophy of the firm can be summarized in terms of four basic components--organizational style, managerial climate, managerial commitment, and team system.

The organic style of organization. Management decided upon an organic form of organization[3] in order to run a carefully controlled operation overall, while continually seeking to improve it and accommodate to the ever-changing environment. This means that the organization needed competent, experienced personnel, with the pursuit of improvement as a normal work effort. Second, goals and objectives had to be clearly stated for individuals and groups at all levels. Third, a group or team approach would be primarily used for problem analysis, for work execution, and for developing courses of action. This required effective internal communications at every organizational interface, a flexible organizational structure, continuous training and education activities at all levels, and a management climate favourable to such an informal system of operations. This last element, a favourable management climate, was the second major component of the philosophy.

The management climate. The desired organizational climate was defined as comprising mutual trust, the freedom of individuals to perform duties in their own way (so long as required results were obtained), and the freedom to express one's own views without fear of ridicule or retribution. However, each employee had to be accountable for his or her own performance, receptive to change and involved in the change process at all levels. Finally, there should be concern for the welfare of others and mutual support for the achievement of shared goals.

Many organizations can claim to have a human relations philosophy and a related organizational climate, but the key question is whether they can implement the philosophy in everyday actions and work behaviour. The third element in the philosophy, top management commitment, is concerned with this particular issue.

The top management commitment. Fundamental to the Petrosar organization was the philosophy that creation of such an organizational climate must start at the very top level and proceed downward level by level. In other words, top managerial behaviour must be an example of the new philosophy in action, so that the favourable climate could extend to lower levels of the organization. The key objective was to avoid a credibility gap between what top management preached and what it practised.

The team system. The fourth element in the management philosophy at Petrosar was the concept of teamwork at all levels of the plant. The use of teams was the means chosen to put into operation the general principles of the Petrosar philosophy. Every employee was to be a member of a work team and might also be a member of other special-purpose teams. The different types of teams are discussed in detail in a later section of the report.

In summary, the philosophy of the Petrosar plant, as determined by the original management task force, was to provide for a number of QWL factors. Employees were to be treated with dignity and respect, and a participative management style laid the foundation for the enhancement of the quality of working life. Second, the team system of management was a deliberate strategy to create an organizational climate and system of operations to support and reinforce the firm's design of jobs. Unlike many organizations trying to enrich jobs in an environment which remains largely traditional, the strategy at Petrosar was to create a supportive climate first and then design work to be consistent with that climate. Thus, the design of work and the organizational climate were intended to be mutually reinforcing and not antagonistic.

DESIGNING THE PLANT OPERATIONS, JOBS, AND SUPPORT SYSTEMS

The Design of Plant Operations

Although the technology of the plant is unique to Canada, the production process design was straightforward, utilizing specialist engineers working separately from the Petrosar task force. In fact, no special changes of the production design were made to modify process flows or arrangements for the purposes of enhancing QWL. Of course, the plant was designed to be efficient, safe, non-fatiguing and as pleasant as possible, but aside from these hygiene factors,[4] the technology had to be taken as a given by the task force. Therefore, in terms of sociotechnical systems concepts, the primary thrust of management efforts toward QWL changes was in the area of organizational climate and working conditions rather than in restructuring the technology of operations.[5]

In keeping with the Petrosar philosophy, the task force designed the formal organization of the plant's operations to consist of a series of teams of supervisors and subordinates. Three types of team were used in the plant.

The structured teams. According to the organizational plan, the plant was made up of a series of work units (approximately 125 in all) with each unit staffed by a team and a supervisor. Each structured team had its own mandate or ongoing purpose and responsibilities, and was essentially self-managing in terms of dealing with its concerns, problems and opportunities. Hierarchical communication and coordination between teams were intended to occur normally in what Likert has described as a "linking-pin" fashion, with a subordinate in a team at one level being a leader in a team at a lower level.[6]

The standing task teams. Several ongoing teams were concerned with issues that crossed departmental lines. Such teams were designed for lateral communications and coordination, or problem solving and decision making. An example is a plant safety team or a team of department heads.

The formal task teams. These dealt with short-term specific issues or non-recurring, non-routine matters requiring investigation and recommendations. The life of such a team was intended to continue for the duration of the project and then be disbanded. Appointments to such a team were to be based on personal qualifications, with the leader not necessarily being the most senior person in the group. Formal task teams would not have the power to take action on their recommendations. Instead, their recommendations would be reviewed by all the other potentially affected teams, and decisions to adopt would be made by the structured and standing teams.

All employees were responsible for their normal work duties on a structured team while also working on various task teams. However, a person's "normal" work load could be made up of a mixture of varying responsibilities. One employee's workload within a structured team may temporarily be less than another team member's load, if the first employee has responsibilities on other teams. Solving any problems of internal equity of workload and coordination was part of the teams' responsibility.

The opportunity to work in both structured and task teams provides several types of enrichment opportunities for workers, and should be a positive force for enhancing the quality of their working life. At the most basic level, work organized in teams should provide opportunities for workers to develop a strong social and occupational sense of identity. Second, the process of negotiating workloads and duties provides considerable opportunity for participation in decision making, an enhanced sense of responsibility and autonomy, and a chance to appreciate the larger aspects of an individual's contribution to the overall organization (task wholeness). Also, workers chosen to work on various task teams would likely have a high sense of self-esteem and personal worth. The opportunity to work as a peer with persons from other departments and other levels of responsibility should enhance this sense of significance and satisfaction with the job. Finally, the practice of using performance criteria extensively in the team system provides workers with opportunities for feedback on their team's efforts, plus feedback on individual performance through appraisal discussions with the leader of their structured team.[7]

Design of Jobs

The next area the task force had to be concerned with was the organization of work at the operator level. This aspect of planning required close collaboration between managers responsible for the production operations and managers responsible for employee relations. Some basic decisions had to be made about what aspect of the interface between production and process operators could be redesigned, and which were technologically predetermined.[8]

It is not surprising that restructuring of the work technology was not done, given the high level of technological intensity in a petrochemical plant and the fact that virtually all processing of raw materials is done mechanically or chemically. Instead, the task force chose to concentrate on changes to conditions of the employee's work life as employees monitor and control the work processes. This is quite different from the range of QWL opportunities available to organizations where employees actually physically and personally manipulate the raw materials in the work flow.

Nonetheless, there were still some key areas in a petrochemical process where operators could significantly affect production volume and quality. One area involved the set-up of the production process by operators. This required adjusting various controls so that processes operated within certain tolerances and produced products according to certain specifications.

Another area is the monitoring and tuning of the production process by operators so that the system stays within tolerance limits and continues to produce products as specified. Third is the responding or reacting to variance in the diverse parts of the operation to prevent losses, "off-spec" products, or even emergencies. A fourth area is the minor maintenance that can be done by operators to keep the machinery and controls functioning smoothly.

Despite the sophistication of technology and automatic controls in a modern petrochemical plant, the human element is still crucial to the production aspects of the set-up, monitoring, response, and maintenance. Carelessness or failure to act in time in the appropriate manner can have enormous economic consequences for the firm and its primary and secondary customers. Thus, the human factor in the production process was tremendously important to Petrosar in terms of risk avoidance. Conventional petrochemical firms have chosen to protect their investment, avoid risk and achieve suitable performance levels by elaborate systems of hierarchical controls. The Petrosar task force went in the opposite direction to achieve the same ends by placing responsibility for decision making and control at the level of self-managing operating teams.

To illustrate the contrast, a conventional system would place decision making and control with supervisors, and operators would be expected to follow directions and instructions. In Petrosar's system, the operator team was given the production specifications as targets to be achieved. It was the team's responsibility to make the decisions and work assignments necessary to achieve those targets. Team members would be expected to act on their own initiative to fulfill their job assignments and to participate in the collective team responsibility for achieving team goals.

The QWL enrichment of their work would come in the areas of goal awareness, participation in decision making, team effort, personal responsibility, and personal competence for that planning, monitoring and fine tuning of a continuous production process. Wholeness of task and feedback of results would be available, from comparison of team results to production specifications and targets. From this planned system of work organization and management climate, the Petrosar task force hoped to capitalize on the human element and thereby gain a sufficient margin in performance and efficiency to enable their plant to be competitive in world markets.

Multi-skill development. There are four basic units of operation in the plant: crude oil, olefins, aromatics, and utilities. Each unit has its own system of controls, but the four units of the plant operations were designed to be controlled from a single central control room. Each unit is operated by structured teams assisted by specialists in maintenance and quality control, who provide services for all units.

Individuals were to begin their careers at Petrosar by learning to do one job in a unit, and once they became proficient at that, they were expected to learn another job in their unit (and their salary advancement would depend upon it). The initial goal was to develop multi-skill abilities for everyone within a unit. Progression through each job was scheduled to take about 12 months, but it was expected that some could learn a job in nine months. Competence would be evaluated by written and practical examinations.

Another goal for the future will be to develop multi-skill abilities for operators across different units, and the existence of a single overall control room encourages this. When one unit develops a complex problem, the boardmen for that unit are expected to consult with the other boardmen, operators and engineering staff who happen to be in the control room. At this time, no multi-skill development is planned across functions, i.e., between operators, maintenance, and quality control jobs. Within the latter functions, worker teams are expected to develop competence in maintenance and quality control for all four units.

In summary, it can be seen that the job design strategy had several possibilities for the enhancement of the quality of working life. At one level, each employee was able to progress through a series of learning curves as they learned new tasks within their unit. To complement this sense of personal achievement, wage rate projection (see following section) was directly tied to skills acquisition. Next, the work design provided extensive opportunities for job rotation within a unit and these opportunities increased with greater acquisition of skills. As the team developed more competence and experience, they acquired more autonomy and responsibility for achieving team objectives. Finally, the group solidarity that derived from working in a team also contributed to a higher potential for motivation and satisfaction with working life.

Design of Support Systems

Support systems generally refer to personnel policies which govern the supplementary activities and practices relating to the treatment of human resources, apart from the normal supervisor-subordinate relationship: that is, communications, rules and regulations, third-party representation, compensation and benefits, health and safety, employee services, and so on.

The goal at Petrosar was to avoid, through careful planning, any discrepancies between personnel policies and practices and the management philosophy, which might be an irritant in the organization or a source of distrust or dissatisfaction. Personnel policies in the areas of compensation, shift schedules and working conditions, communications, and third-party representation, will be discussed in the following sections.

Compensation. The task force decided that employees would receive salaries equivalent to the top one-third of the scale for comparable jobs in the Sarnia area. All persons were to be paid on a monthly rather than an hourly basis. It was later learned, however, that many operators still wanted to know what their hourly rate was in order to compare directly with employees at other plants.

Employees were divided into three categories for compensation: managerial, support and technical staff, and operators and craftsmen. For operators, progression through the wage scales was planned in five basic phases, although some exceptions could occur in various job classes. In the progression plan, persons hired at phase one would receive technical training, within their operating unit, to master the skills at that level. Employees would be given nine months to learn the phase one skills, and were required to take written, oral, and practical exams by the twelfth month. Employees who passed an exam administered by a supervisor, could then work unsupervised in the area for which they had passed the exam. Each phase had a flat pay rate plan (no range), on the assumption that a person would be fully qualified to work at that level; the only means of progression would be to learn higher-level skills. An employee could work at the new level of skills as soon as the exams were passed, but could not receive a new salary grade before nine months had elapsed. Employees who could not eventually qualify for higher levels of skills would not be retained by the firm.

It was expected that when employees had achieved the fifth phase of progression in their unit, they would be fully qualified in all skills necessary to run that unit. They would then be eligible to be unit supervisors, and could also learn about other parts of the plant system.

Shift schedules and working conditions. The task force decided that office, technical support, and maintenance staff would work an eight-hour shift, five days a week, with Friday off every third week. (These Fridays off have become a standard benefit among the larger firms in the industry.) This has the effect of providing a shortened workweek for employees of 37 1/3 hours per week over a three-week cycle. The plan for shift workers, on the other hand, was to work 12-hour shifts in a pattern of three days on and three days off for 24 days. Then, they would get an extra three days off for a total cycle of 27 days, resulting in shift operators having the last six days of a cycle off before beginning a new cycle.

Regarding physical working conditions, the company made an effort to de-emphasize status differences in the plant. The task force decided on a common parking lot and cafeteria for all employees, and similar hats or uniforms for supervisors and operators. Because of the number of meetings required for the team action process, the Petrosar plant was designed to have more than a typical number of meeting rooms, conveniently located throughout the plant. The firm also made efforts to make the plant a pleasant physical environment for both the employees and the surrounding community.

In summary, the task force attempted to make the compensation and working conditions compatible with the plant philosophy. The firm provided benefits and working conditions similar to others in order to attract and hold skilled employees, especially since the area's incomes and conditions tended to be quite attractive. Petrosar's general corporate policy was to remain competitive, even above average, but not to be a leader in these areas. Instead, the firm's intention was to offer respectable working conditions while focussing on superior motivational factors for employees.

Communications. One of the early philosophy statements by the task force at Petrosar indicated that it was desirable to have interchanges on items of mutual interest in a group situation and that there should be a free flow of information within the organization. To achieve these aims, the task force planned the following formal practices:

1. Company-wide meetings would occur three times a year with an address from the president on current concerns for the company. All the members of the executive team would be present, and employees would be free to direct questions to them from the floor. Attendance would be voluntary for all but the senior executives. In practice, attendance normally has been about 75% of employees.

2. Structured team weekly meetings were planned to handle communications through the line organization. A "linking-pin" process was intended to be used, and verbal communications with dialogue were preferred to written memos. The task force hoped that such a system would encourage two-way communications.

3. Handbooks and company publications did not turn out to be a high priority. This suggests that the other communications practices were working well. In general, the task force wanted the company to try to operate with minimal guidelines and rules. In the absence of an elaborate handbook or policy manual, local flexibility was to be encouraged for solution of minor problems. Larger problems, with cross-departmental implications, were expected to be handled by the formal task teams. Alternatives were to be discussed by those parties potentially affected before any final implementation.

In keeping with the task force philosophy of flexibility and openness in communications, three other forms of communication developed after employees had been hired and training had begun.

4. Employee surveys have been used regularly for the past three years to assess progress in training, comprehension of company policy, and attitudes toward the firm. In addition, other surveys were carried out to gather information on employee concerns and to test reactions to new proposals such as modifications to the benefit packages. This information was summarized and communicated to the structured teams for discussion in their team meetings.

5. Management participation in orientation and training programs and formal task teams was important. Recent surveys have suggested that their increased visibility has been helpful.

6. Executive and plant personnel meetings with small groups of employees were used to discuss issues within their area of operations, and to have give-and-take discussions on new developments. These departmental meetings were started voluntarily by one of the vice-presidents, and other senior executives have copied the practice.

"Third-party" representation. Inherent in the firm's participative management philosophy was the concept that employees and management should be able to communicate freely and solve any problems by their own efforts. Management felt there was no need for an association, council, or union to enter into the dialogue or the working relationships within the firm. Also, since Petrosar started operations as a new organization, the firm had no historical relationship with a union. Aside from the fact that the company believed "third-party" representation to be superfluous, lack of formal representation was seen as providing advantages in flexibility for both management and employees. However, it is open to question whether such a system of flexibility and non-formalization of rules, policies, procedures, etc., could exist in a larger scale of operations. At Petrosar, at least, the system seems to work satisfactorily.

RECRUITING AND TRAINING STRATEGIES

The company based all of its recruiting publicity on the management philosophy plus the opportunity to work on the challenge of building and running an entirely new facility. Not having a ready inventory of personnel, the firm had the luxury (and the headaches) of widespread recruiting, rigorous selection procedures, and beginning with a fresh slate of human resources. The people orientation at Petrosar was highlighted in their advertising, interviewing, recruitment, pre-employment visits, selection, relocation policies, and orientation procedures.

The recruiting process was viewed as an important first step in establishing credibility for the management philosophy. A second purpose of the publicity campaign was to allow potential recruits to have as much advance knowledge of the Petrosar philosophy as possible. Some managers, for instance, simply cannot operate in a manner which gives responsibility and autonomy to subordinates, and the Petrosar campaign may have served to dissuade such managers from applying for a job. Similarly, some operators do not want the responsibility and relative ambiguity accompanying self-management.

This form of "reality recruiting" helped cut down the number of applicants during the initial stages of recruiting and screening. It raised the ratio of job acceptance to job offers because the people who chose to pursue a job application with the firm were more likely the ones who really wanted to work within that sort of an environment. The firm also saved itself a lot of trouble in orientation and training by hiring people whose attitudes, values, and work styles were already in tune with the organization's desired operating climate.

The recruiting challenge was to fill approximately 590 openings, of which approximately 225 were to be executives, managers, supervisors, and professionals; the remaining 365 were to be process operators, maintenance craftsmen, administrators, and clerical support staff. The selection criteria for the top 30 executives and managerial positions were important, as the new philosophy was entirely dependent on those people understanding, accepting, and practising participative management. The selection criteria used were: (1) proven technical competence; (2) proven managerial competence; (3) previous exposure to and practice of participative management; and (4) a fundamental and intuitive belief that this was the most desirable way to manage. According to the director of employee relations, not once did the firm compromise and use technical competence as the sole criterion, but "that statement does not mean we didn't make a few mistakes".

New recruits at the operator level had to go through three interviews before they were offered a job. They were first interviewed by the employee relations department, then by the first line supervisor, and finally by a second level supervisor. The initial interview was particularly concerned with determining whether the person was likely to fit in, while at the same time detailed information was provided about the specifics of the Petrosar system.

The importance of the recruiting effort in finding people with a combination of technical competence and personal compatibility with a participative management climate cannot be overstated. Anyone involved in training and organizational development (OD) work knows how difficult it is to change managerial styles and attitudes toward work and employees once people are hired. By starting fresh and by being extremely careful in trying to hire only psychologically compatible people for the new organization, Petrosar was able to avoid many problems of maladjustment and remedial training. Despite these precautions, the firm found that some people still left the firm because they couldn't handle the openness of the Petrosar operation. The number of leavers was not especially high, but this illustrates that it is not possible to avoid all errors in recruiting.

Training Strategies

During the early stages of the recruitment program, the task force began to work on human resource development programs which were intended to train and prepare people to work in the new system. Three subject areas (philosophy comprehension, team building and practical skills) were chosen for major training areas, and a five-step strategy was developed to implement the program.

Stage One. The first stage was team building and maintenance training for the structured teams. This was carried out with orientation and supervisory and non-supervisory awareness programs. A two-day orientation program was run for all employees within their first two months of employment. The program covered management philosophy, introduction to the team action process, review of the plant organization, physical facility, plan process, safety, benefits, and working conditions. Session leaders for the orientation program were senior line managers. This gave new employees an opportunity to see the senior managers in action.

The supervisory awareness program was a one-week workshop seminar for all managers and supervisors, conducted by a senior line manager and an OD specialist. It was not felt sufficient only to hire the right people; it was also necessary to make sure that all managers had the same basic level of skills, and that a certain amount of consistency in managerial practice appeared in all parts of the organization. The program was designed to sharpen managers' and supervisors' skills in interpersonal areas such as communications, conflict resolution, and motivation of others. The program also tried to build skills for managers to perform as problem solvers and decision makers. Finally, it covered concepts of the team action process and procedures for introducing it to other parts of the organization.

The non-supervisor awareness program was also a one-week seminar, with a program similar to the supervisor awareness program. All non-supervisory employees were to take the seminar--a process that would take about two years. Ideally, this program was to provide subordinates with knowledge and expectations of work behaviour similar to that of their supervisors. Thus, the two groups would share the same language and organizational culture.

Stage Two. The second stage in the training strategy was to provide the work teams with practical knowledge about the team action process. The firm developed a team action manual describing how to establish and operate a team. The respective roles of team leaders and team members were summarized. All employees participated in a one-day training program on the team action process, and the manual was introduced. Training was also provided for developing a statement or mandate describing the team's existence, its purpose, the guidelines for its operation, team action planning, analysis of performance, conflict management, and preparation of the results of team activities.

By participating in these activities, team members were able to appreciate the wholeness of the team task, and to understand the various elements making up the task or mandate. The specific roles and job descriptions of individuals within a team were left undefined, since in a team composed of multi-skilled generalists, an individual's specific role might change from day to day.

Stage Three. The third stage in the training strategy, which was crucial to the successful operation of the teams, involved forming actual structured or operating teams and having them work together during technical training prior to actual operation of the plant. Working together as a team provided opportunities for experiential learning and a better understanding of and commitment to the team action process. Process consultants worked with the teams to help them progress toward more effective operations.

Stage Four. The fourth stage was to monitor the teams' work performance and experiential learning. The company established a series of performance indicators to provide information that was available to all teams so they might learn from each other and thus improve their effectiveness. Data on the social operations of the plant were also gathered through observations, surveys and interviews. Finally, some formal task teams were also responsible for assessing various aspects of system effectiveness.

All of these data were available to all the employees in the system, in keeping with the philosophy of the firm.

Stage Five. The fifth stage of the training strategy was to reinforce and consolidate the gains achieved from training and practical experience. The responsibility for self-improvement rested largely with the teams themselves. The role of the employee relations department was one of facilitating and providing new information to teams when appropriate. Under the terms of the implementation strategy, the employee relations department will gradually withdraw from active training, and the teams will take more of the initiative.

In addition to team action training, supervisors and operators also had to spend considerable time in technical training. Once basic levels of skill had been mastered, each member of a team was expected to begin learning other skills so that team members would possess varying degrees of multi-skill capacity. It will be remembered that progression through the salary ranks depended on the acquisition of successively higher levels of job skills. Overall, a worker might be involved in formal training sessions for up to 10% of his time. Continual learning and development were to be established as a way of life in the firm.

The experiential learning process was severely tested during the transfer from team activity in technical training to team activity in actual plant operations. During the past two years of start-up operations, all members of the organization experienced considerable pressure to get the plant running well and to develop the participative team process at the same time. During the start-up phase emphasis was placed on monitoring the progress of the implementation strategy to make sure that it did not drift off course.

RESULTS TO DATE

The preceding descriptions of Petrosar's planning and efforts to implement the new system have suggested that the company laid a strong foundation for a successful participative management system. Although the plant has been in operation for almost two years, it can still be considered to be going through the start-up process, as full utilization of capacity is not expected for another year. Nonetheless, top management reports that this is one of the few plants of its size to start up so soon after construction and to begin operations without a lot of problems. Considering that the debt burden of a $700 million investment at an interest rate of 20% is $140 million year, or almost $400 000 per day, every day gained in start-up or utilization of capacity is tremendously important. Interviews with operators and supervisors at the plant confirmed that start-up had gone well. Two reasons were cited for this success: good technical design and the participative management system.

Another impression gained from interviews with operators was that the type of participative team activity and the variety of tasks changed considerably from pre-start-up to start-up. In the pre-start-up phase, task teams needed to work on special projects, and the structured teams were concerned only with learning their respective technologies. During start-up, the emphasis switched to work in structured teams, and less time was available for work in task teams. Once the start-up phase is completed, the activities of structured teams will move from problem solving to more established routines. The general purpose of task teams is to research organizational problems and concerns, and to make recommendations, and with accumulated experience in the organization, there will be a declining need for task teams.

This does not mean that the team system did not work, or that there was operator dissatisfaction with the team system, but that the phenomenon of the start-up at the plant has a major influence on the plant climate and working conditions. As the start-up goes through its life-cycle, the working environment and the challenges posed to the system also change. Consequently, perceptions of the quality of working life may be quite different before, during, and after start-up.

Individual motivation. In the pre-start-up phase, there was no production, and the job challenge was to learn new skills and to prepare for operations. Employees might be characterized by a motivational state of expectancy or anticipation. In the start-up phase, there was rapidly rising production, and the job challenges were operations, learning, problem solving, and mastery of skills. The potential motivational state for employees was a sense of involvement, excitement and achievement. In the on-stream phase, a high production level with a levelling off in growth rate was achieved and the job challenge became one of fine tuning and developing a consistency in operations. The potential motivational state for employees was concern for accomplishment, detail, and perfection.

It is apparent that different stages in the start-up cycle present different challenges, and that some challenges will appeal to some persons and not to others. This may have an effect on employee motivation and satisfaction at different stages in the cycle. Some evidence to support this interpretation has been provided by turnover statistics at the Petrosar plant.

TABLE 1

TURNOVER AT PETROSAR

Year	Rate	Total Number of Employees
1976	5.6%	324
1977	7.4%	500
1978	9.4%	624
1979	6.1%	690
1980	6.0%	725

Turnover patterns. Exit interviews and turnover analysis have revealed three principal categories of leavers. A major category was professional start-up people who were basically transients in the industry, moving from one start-up situation to another. They appear to be strongly motivated by the sense of anticipation and challenge of pre-start-up and start-up. Once these phases are completed or the operations begin to stabilize, the transients start to get restless and look for other challenges. This accounts for the rise in the turnover rate in 1978, one year after the plant became operational.

A second category of leavers consisted of people who went back to their former employers at better jobs after receiving the technical training at Petrosar. A considerable amount of inter-firm mobility of this sort is common in the Sarnia area, and employees are often willing to move to other organizations if an opportunity develops at a higher grade or job level at another firm. In these cases, it would seem that the opportunities for promotion outweigh the non-monetary benefits of continuing to work in the Petrosar environment.

The final category of leavers consisted of those who simply could not adjust to or work with the openness and participativeness characterizing the Petrosar system. This situation can occur when people honestly believe they would like to work under such conditions, but have not had any experience in an open system. Perhaps the degree of ambiguity or uncertainty is more than they are comfortable with, so they leave to work in more traditional organizations. This type of turnover is basically a "shake-out" process and would also contribute to the rise in turnover in 1978. After the shake-out has been completed, the turnover rate should be expected to drop back to some more normal rate, which is what the company has experienced since 1979.

Team work. Once the effects of the start-up cycle had been accounted for, the impressions gained from interviews with operators on the site were largely favourable toward the team action system. Respondents suggested that 90% of the personnel were able to adjust to the system and wanted to make it work. Those who couldn't adjust had left. A strong impression of helpfulness, cooperation, flexibility, enthusiasm and a desire to improve operations was frequently observed at the plant. Company officials reported a general absence of petty politics, gamesmanship, and conflicts between employees and supervisors, and between departments. Decisions within teams were achieved by consensus, not by votes or commands. If supervisors do have to issue directives, subordinates have the freedom and the right to ask for an explanation or a justification of the directives. This situation rarely occurs, because almost all decisions are reached by a participative process.

Economic performance. Management's goal of having employees concerned about the economic performance of the plant seems to have been achieved. The dissemination of the company's economic and financial data, employee knowledge of the overall production process, and the team concept were all important for creating a high level of concern for the success of the company. Employees probably realized that their job security was tied to getting the plant operating at a high level of capacity and keeping costs down. Their degree of concern was much stronger than observed among employees at more traditional, well established plants in the area. Petrosar management reported that most employees were committed, excited, and working hard at improvement in every sector of the business. The firm is not yet ready to do a complete financial analysis of the profitability of the operations, but it reports that plant performance has improved each month since it became operational in November 1977.

The company continues to survey employees regularly on organization climate, and management reports significant improvements in employees' satisfaction with their job, company, and environment. In addition, there does not seem to be any interest among employees for "third-party" representation. The task force felt that if the participative style is practised at all levels, the question of representation will never become necessary and this expectation seems to be borne out so far.

Finally, management feels that its current indicators of success are only for interim results, and the verdict is not yet in on the ultimate indicators of economic performance. In one or two years, they hope to be able to discuss results on profit performance, cost improvements, new business development and readiness, and on the creative-innovative climate within the organization. These factors will help to assess whether they have achieved a high-performance organization, approximately six years after the project began.

CONCLUSIONS

Conceptualization of the QWL program

The original thinking and planning of the QWL program seemed to be very sound, with no obvious contradictions with prevailing research and theory on QWL. There is no evidence that the managerial task force directly used any of the contemporary QWL models such as Hackman and Oldham; nor did they make any special use of external consultants. Instead, they relied on their own knowledge, experience, and general management education, and designed their own form of QWL program. This program was unlike the conventional sociotechnical systems model of QWL improvement, in which changes are made in both the technology and the social system of the milieu. The changes, in this case, were primarily on the social side, because of the constraints imposed by the externally designed technology. This is a situation common to most continuous process technologies, and Petrosar went to considerable lengths to provide for enrichment and growth opportunities in the other areas of work.

Implementation

Two advantages aided the process of implementation. One was the opportunity to start with a clean slate of operations and personnel. The second was the vision and commitment of the original management task force. Most large-scale OD programs cannot succeed without the strong support of top management. Petrosar is a good example of how well an OD program can work with that strong support.

A third major factor in implementation was the care and attention paid to recruiting and orienting new staff to the organization. Research on QWL has shown that not everyone is motivated by or comfortable with a QWL environment. The company gained a major advantage in its implementation activities by careful selection of new employees for compatibility with the proposed system.

A fourth consideration was the major effort to indoctrinate personnel and train them in how to work with each other and the new technology. Without extensive indoctrination and skills training, both supervisors and subordinates may misunderstand the team action system of working relationships. If misconceptions were not discovered and prevented early, people might in all innocence work against the overall aims and objectives of the system. At Petrosar, a firm foundation was built for continual upgrading of skills and correction of problems, with the establishment of training as a way of life in the company.

Operations

From the evidence gathered to date, the system of operations seems to have been well implemented and is already providing positive results. Indicators of performance and satisfaction are consistently good, and only minor fine-tuning problems have arisen. It appears that the company can expect continued progress and desirable results from its future operations. Some degree of slippage can always occur, of course. For instance, the policy was to minimize status differences at Petrosar, and the consensus from interviews was that there were little or no status differences. But about a year after start-up, staff offices were moved into new, very spacious and comfortable facilities, and line managers (who were under pressure to get the start-up completed) were left in a bare concrete-block office building, often doubled up with others. This led to some resentment among line managers of the implicit status differences between themselves and the headquarters staff.

However, examples of slippage should be alleviated by the company policy of actively monitoring the organizational climate and seeking consultations. Management does not take unilateral action when problems are revealed. Instead, an action research procedure is used in which problems are discussed with relevant parties, and possible solutions proposed. Action is taken only after a consensus has been achieved. Management follows this procedure in order to remain consistent with the principles of the management philosophy, and to establish and maintain their credibility within the system. In the long run, this process of monitoring and problem solving should lead to the continued achievement of the company's performance goals.

EPILOGUE

The plant start-up and QWL program progressed satisfactorily up to a year after this case was originally written, when a $350 million dollar expansion to the plant was begun for a new heavy oil upgrading unit. Some personnel were transferred from the main plant to work on the new start-up project, while others were recruited from outside. The same management philosophy and system of team management were planned for use in the new plant.

Unfortunately, the introduction of the National Energy Policy (NEP) by the federal government made a substantial difference to the economics of the Petrosar operations. The Petrosar plant uses crude oil as its basic feedstock; the NEP pegged the price of natural gas at 65% of crude oil, and crude oil prices were pegged to world prices. Petrosar's competitors, who used natural gas as a feed stock, had a built-in cost advantage, and Petrosar could not match this.

There were tremendous pressures at Petrosar to reduce costs and to shift to a no-growth strategy. The planned expansion was cancelled in February 1982. Newly hired project personnel had to be laid off, and longer term Petrosar employees had to be absorbed into the main plant's operations. This left the main plant over-staffed and a general manpower reduction program became necessary.

The founding president (who was the main impetus for the establishment of the QWL program) resigned in May 1982, and was replaced by an executive recruited from one of the shareholder firms. The new president expressed continued support for the company philosophy and team management system, but also cited cost reduction as a major strategy for the survival of the firm. In August 1982, the firm offered an opportunity for voluntary resignation (with benefits incentives) to the supervisory and professional staff. Fifty-five persons took advantage of the opportunity. A further 65 were later laid off or involuntarily resigned. Most of the organization development specialists and a considerable number of human resources personnel left at this time.

In February 1983, another voluntary resignation program was offered and another 90 supervisors and professionals left the firm. The original vice-president of personnel, the director of employee relations and the director of organizational development had all left by this time, leaving a human resources staff that concentrated mostly on personnel administration. The number of operating personnel has remained more or less the same during the cutbacks, so the primary effect has been to reduce staff overhead at the professional, supervisory and executive levels of the firm.

Support for QWL continues at the firm, but QWL support systems have been cut back dramatically due to the loss of all of the original advocates and facilitators of the program. In the words of one of the former key players in the program, "no special energy is being infused into the system anymore". Thus, it remains to be seen whether the program can be sustained by its own momentum, or whether it will gradually wither under continuing conditions of economic severity and lack of active support and commitment.

NOTES AND REFERENCES

[1] This case study was prepared under the auspices of a research grant from the Employee Relations Branch, Labour Canada, Ottawa.

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[3] T. Burns and G. Stalker. The Management of Innovation. London: Tavistock, 1961.

[4] F. Herzberg, B. Mausner and B. Snyderman. The Motivation to Work. New York, Wiley. 1959.

[5] One change in the plans for the plant layout was made at a very early stage and that was to have one central control room for all four production units rather than four separate control rooms. Aside from the purpose of enhancing coordination between units, the central control room design was intended to encourage operators to use and visit the control room during their work shift.

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PART II

REDESIGNING ORGANIZATIONS

REDESIGNING ORGANIZATIONS

There are several ways of redesigning the organizational systems in which we work. We might, for instance, try to change the attitudes and values of the members of the organization, perhaps assuming that one set of attitudes is more appropriate than others. That is, we might assume that a "Theory Y" method of management--emphasizing honesty, openness, and responsibility--is the most appropriate way to manage people. We might change the technology, techniques, or equipment so that we can reduce costs, improve productivity, and make work easier for the employees. We might try to change the tasks, objectives, and purposes of our organization so we are more responsible to the clientele we wish to serve. Or we might attempt to restructure the ways we relate to other institutions and people--by changing the legal structure, the cultural background, the terms of reference, and so forth. Traditionally, these types of redesign have been undertaken without taking account of how they affect other parts of an organizational system. We may have improved the technology and equipment, for example, but may not have understood how these changes affected the individuals' willingness to work.

The cases in this section highlight the use of sociotechnical systems assumptions for designing organizations. From this perspective, changes in technology, task and structure are seen to be more appropriate when they correspond to the needs of the social system. The technical system is composed of technology and task requirements, while the social system is composed of the values, interests and beliefs of the various human actors. The following case studies are not ideal textbook descriptions of sociotechnical redesign. Translating the ideas into the practice is never perfect. But they provide good examples of the adjustments and compromises that are frequently required when theory meets reality.

Job Redesign

The Work in America study[1] stated that an increasing number of Americans are dissatisfied with the quality of their working lives. To deal with the problems of "blue collar blues" and "managerial discontent", this study recommended "humanizing" the workplace, giving particular reference to the job enrichment strategy, but job enrichment has, in some cases, been viewed as a managerial strategy to co-opt the workers and get what management wants. Other interventions have focussed on changing the power balance in the organization, giving worker groups more responsibility for the management and organization of their work. The case studies in this part include those that have implicity or explicitly tried to change the power balance in the organization. They were, no doubt, initiated with the desire to improve the performance of the organization, but they were also directed at achieving a better quality of working life by giving workers more responsibility for the design and operation of the organization.

The first case study, by Lareau and Wright, describes the efforts of a joint management-union committee to resolve issues of job classification and salary. The clerical work involved in issuing refunds for tickets was routine and monotonous, with up to 50 000 separate ticket refunds to be processed each month. The focus of the program was the introduction of "state of the art methods" of automation to improve customer service, job satisfaction, management-employee relations, and operational efficiency. At the same time, a "work improvement" project was suggested, aimed at effecting a "significant increase in employee involvement in the planning, managing, and designing of work and planned change". A joint union-management steering committee was responsible for guiding the work. One of these projects was in the refund services section of Air Canada's finance branch in Winnipeg. An employee team took on the responsibility for identifying problems related to the working environment and how the jobs were done. The most significant changes resulting from the analysis was the reorganization of the work process around employee teams, each responsible for a regional area. Rather than individual workers performing a small repetitive part of the refund process, four teams of five to six employees were formed to handle all aspects of refunds pertaining to a geographical region. In effect, the job redesign gave the workers more responsibility and variety in their work and increased interdependence as a group and the opportunity for greater involvement in the refund process.

The second case study describes a job redesign project within the maintenance department of an Alberta oil refinery. The project described by Tucker and Taylor arose out of the desire of the maintenance manager to improve the productivity of his department and to enhance the quality of working life. After trying several approaches, he initiated a sociotechnical systems analysis. The analysis was done by a task force of supervisors and tradesmen with the help of an internal consultant. The analysis revealed that control of most of the key variances lay in the hands of the supervisor. At the time that final design recommendations were being prepared, the maintenance manager was promoted to another position in a project group associated with a refinery expansion. The new maintenance manager was unfamiliar with the evolution of the sociotechnical design and, as a result, the project floundered for about a year. He was apparently unable to deal with the resistance of some of the supervisors. In fact, none of the changes that might be attributed to the sociotechnical analysis have involved any transfer of power, decision making or discretionary action from supervisors to tradesmen.

The third case, by Adams and Kyle, describes a joint union-management program aimed at improving job satisfaction and performance. The program began in a climate of mistrust, poor efficiency and low job satisfaction. Employees stated that they wanted more money and better working conditions. It was discovered that there were several underlying problems--supervision, training, allocation of responsibility, information feedback, and organization of the work itself. In resolving these problems, the joint union-management committee suggested a program of change aimed at improving the design of the jobs. The new jobs were reviewed under a job evaluation plan which was based on pay for both knowledge and skill, whether or not they were being used on a specific job. Originally, money was the key issue in the minds of the employees, and the design group was aware that more money could be made available if it could be tied to increased job content, upgraded qualifications, and expanded knowledge requirements.

The case by Alon and de Guerre describes the collaboration of store employees and managers of four supermarkets in Ontario in the joint evaluation of a program aimed at improving the quality of working life. About one-and-a-half years after initiating the QWL program, they began to sense the need to examine whether the project had measured up to expectations. They were interested in the progress being made, and did not want to rely on traditional questionnaire methods. Instead, they began a process of research that involved store employees and managers. The research process was instrumental in encouraging commitment to the project, and may have provided the framework for future redesign efforts.

Gainsharing and Employee Ownership

Gainsharing and employee ownership can be viewed as a strategy of redesign that focusses on the way individuals are rewarded for their work and the way they contribute to the organization's ownership. While Herzberg's theory of motivation suggests that money is not a motivator whereas challenging work is, shadows have been cast on his job enrichment thesis, and other evidence has drawn attention to the economic aspects of work.[2]

The case by Painter draws on the experience of one company and the process it undertook to design and implement a productivity gainsharing program. Employees at a trailer manufacturing company wanted to increase their earnings, and were concerned about the need to restore the company's economic viability. Some employees were concerned about the equity of the existing payment system, which rewarded persons equally according to their skill level, regardless of their actual performance. The solution suggested by management and virtually all employees was initially called an incentive program. In an industry having a history of antagonism to piece rates and with mixed feelings about an old "contract" system, workers were reluctant to get involved in any gainsharing program. There were several aspects to the development of the plan, including a steering committee to guide the plan, and the assurance that the plan would have to stand the test of experience. The gainsharing plan had a trial implementation period of six months, during which time the plan was constantly monitored and revised by the working committee. Throughout the trial period, the working committee met regularly to resolve problems.

The case study by Long outlines changes in ownership and participation. These changes included: (a) purchase by the employees of one third of the common (voting) stock of the company, (b) placement of three employees on the nine-member board of directors, (c) establishment of an elected employee council. While the employee ownership system was received favourably by both managers and non-managers, the expected positive changes in job attitudes did not materialize. It could be that the share provided for employee ownership was too small or that employee ownership made no real impact on company policies. Although employees became disillusioned about the usefulness of these mechanisms, virtually none were in favor of their abandonment, perhaps indicating a feeling that these mechanisms have the potential to be effective under the right circumstances. The study suggests, among other things, that managers should not assume that financial incentives will automatically motivate employees, regardless of the management style of the organization. Furthermore, an incentive system in itself cannot guarantee significant improvement in productivity, although there is a strong likelihood of other long-term gains.

Participation in Decision Making

Participation can mean employee consultation, group meetings, brainstorming or employee management through worker committees. It is our view that participation, if it is going to lead to long-term changes in the quality of working life, will need to alter the centre of control in any organization. The following two cases are illustrations of this type of participation, and involve employee management through teams or semi-autonomous groups.

Lory Laing's case on team management is one illustration of how employees became involved in the decision making of a large organization. It describes the development of a system of semi-autonomous work groups, and then illustrates how these groups set out to respond to problems of turnover and lack of commitment to shift work.

The final case in this section, by Painter, Lockhart and Spalding, concerns community involvement in an isolated setting. Dissatisfaction with the quality of life in this community eventually gave rise to a joint labour-management committee--the Skeena Manpower Development Committee. The basic purpose of the committee was to develop labour stability. The problem of instability had extended beyond any one industry to include consideration of the needs of workers and the community as a whole. During the first half-year, the committee sought suggestions for dealing with the "mess" of problems underlying high labour turnover. What emerged was a strategy for gaining a better understanding of the shape and magnitude of the instability problem, while identifying situations and issues appropriate for follow-up actions that would demonstrate the possibility for change. As the committee gained credibility, it undertook a number of projects--conferences, training programs, and so forth. The case describes the steps that were taken in bringing this about.

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AN ANALYSIS OF A WORK IMPROVEMENT PROGRAM IN AIR CANADA

by

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ABSTRACT

Air Canada's Work Improvement Program in the refund section of Winnipeg Finance was aimed at involving employees in the planning, managing and designing of work. This paper examines the different perspectives of the participants by using a conceptual framework to highlight the organizational complexities arising from the introduction of change.

INTRODUCTION

In 1970, a reorganization of Air Canada took place in which many key financial personnel were moved from Winnipeg to Montreal necessitating some major staff changes. The reorganization included the establishment of a separate computer branch, taken out of finance and later moved to Dorval. The accounting department in Winnipeg then occupied five office floors and was responsible for such system-wide accounting functions as sales and revenue determination and control; credit approval, billing, control and collection; payroll processing, cheque issuance and control; and disbursement processing, cheque issuance and control. The staff was made up of approximately 75 management and 600 clerical personnel, of whom about 80% were women. The management style was traditional, and employees were closely supervised in the performance of their largely routine clerical tasks.

An article in the Montreal Star of April 12, 1979, described the situation in the credit card and refund sections in the early '70s as follows:

> Clerks, computing complicated refunds, were not allowed to use calculators, which were a perk reserved for one rung up. Each of the 70 workers did only a one-minute, mechanical part of the complicated claims process. No one saw the whole picture. Productivity was low, and the office always had weeks of claims backlogged.

Management had hired many temporary workers to try to improve productivity. Employees, remembering the move of the maintenance base to Dorval in the early '60s, feared more moves out of Winnipeg. These factors further contributed to an unsettled work climate.

Although the office had not previously been unionized, this troubled labour relations environment led, in August 1972, to the certification of a union representing approximately 470 of the clerical workers. While the first round of negotiations was being held, management directed a number of external efficiency consultants to conduct a three-month comprehensive productivity study to identify and address the problems in the workplace. This further exacerbated the situation. Action on the study was delayed, however, because failure to resolve a number of bargaining issues led to a strike in May 1973. Air Canada maintained minimal operations in Winnipeg during the 81-day strike by bringing in management and clerical staff from other locations.

As part of the contract settlement, it was agreed that a joint management-union committee would be established to resolve the issues of job classification and salary levels. Despite the assistance of outside consultants, the committee was unable to reach an agreement. The next 18 months were characterized by deteriorating productivity and service standards. Conflict and frustration prevailed throughout the operation, and Air Canada management admitted it was "a hopeless mess".

In late 1974, at the pitch of this labour difficulty, a new general manager was appointed. Although he recognized that improving the relationship between union and management was a necessary first step toward a better working climate, collaboration between the two sides seemed impossible. The contract period ended without resolution of the job classification issue and another conflict over work jurisdiction emerged, further reinforcing the adversarial positions held by both parties. By the end of the year, negotiations had completely broken down, and for the next six months a series of rotating strikes took place. Finally, in July 1976, Air Canada closed the Winnipeg operation and locked employees out. Essential services were provided by re-routing work programs to other locations in the system.

In consultation with the general manager, preparatory work was undertaken during the next several months by head office organization development specialists to outline a conceptual framework and an overall strategy for improving the work climate and productivity. The focus was on innovative methods to improve customer service, job satisfaction, management-employee relations, and operational efficiency. A Work Improvement Program (WIP) was suggested, aimed at effecting "a significant increase in employee involvement in the planning, managing, and designing of work and planned change". The initial steps proposed were to select a suitable site, develop a baseline measurement, and set up a phased implementation schedule.

As work was gradually repatriated to Winnipeg and employees returned to their jobs, a new union was able to gain sufficient support to be granted certification and a collective agreement was signed in February 1977. The lingering issue of job classification was resolved by adopting a broad-band classification system consisting of six clerical levels. Reference to work jurisdiction was excluded.

Shortly thereafter, an invitation was extended to the new union to participate in the Work Improvement Program. The president accepted the invitation, stating "We are very interested in improving the working life of employees and so we agreed to participate". After a union briefing on the objectives of WIP, a joint union-management steering committee was established. The purpose of the committee was to set policy, guide direction, and provide advice and counsel on an ongoing basis. Membership included the general manager, the director of personnel and the director of computer services in Winnipeg, the senior manager of head office organization development, the director and manager of the pilot area, a union representative from the pilot area, and the president of the union local.

At the committee's first meeting, on March 8, 1977, agreement was reached on the terms of reference and objectives of the program, the proposed strategies, a shelter agreement to protect all pilot areas, and the roles and responsibilities of the participants.

Four potential sites were identified by the steering committee, including the refund services section, and the managers and supervisors were invited to attend a three-day workshop dealing with their changing roles under participative work styles. Subsequently, two pilot areas were selected and the employees of both were brought up-to-date and asked to join. Their response was enthusiastic, and work began in April 1977.

The general manager explained the WIP program this way:

> It was really a three-tiered management approach that, as the first step, required the establishment of a steering committee to help us wend our way through the project. We felt it was very important to get the union on board, as well as corporate management and Winnipeg operating management. The second step or tier recognized that the manager of the pilot worksite needed to be highly supportive and involved in the change effort. And lastly, we recognized that as an accounting group we were ill-equiped to deal with process issues and consequently needed a consultant to help us.

The union agreed with this approach and explained their role as follows:

> Management is basically responsible for the Work Improvement Program--we are on the committee at their invitation. We are here to protect the rights of the employee if we think they are going to be jeopardized.

THE WORK IMPROVEMENT PROGRAM (WIP) IN THE REFUND SECTION

For the 36 employees in the refund section, the opportunity to participate in the Work Improvement Program was an exciting prospect. The clerical work involved in issuing refunds was routine and monotonous.

> Paper shuffling was a day-to-day horror story. With up to 50 000 separate passenger ticket refunds to be processed each month (one refund for every 17 tickets issued), processing refunds was like assembly-line work. Each finance agent was a 'specialist' but not in a very productive or satisfying way. Each one had a task to do and they did that same task all day long.[1]

At times, up to 25 people handled a single refund. This volume of work, together with the immense backlog built up over the period of labour difficulties and an obsolete computer support system, made refunds an obvious target for work improvement.

In mid-1977, an employee team under the leadership of the manager of refunds was elected by the employees of the section. The team ranged in size from two to four full-time members. Their purpose was to analyse each job, identifying problems related to the working environment and how the jobs were done. Weekly progress meetings were held with the management and employees of the section and the organization development consultant. Chaired by team members, these meetings normally took the form of question and answer sessions. Periodic reports were also made to the steering committee and information circulars were used to keep the whole of Winnipeg Finance up-to-date.

The Change Process

Three tasks were undertaken by the project team: an analysis of the social system, an analysis of the technical system, and the development of a data base detailing existing standards. The social system was analysed by means of a job diagnostic survey entitled "You and Your Job" developed in conjunction with Richard Hackman of Yale University.[2] The survey was designed to help determine how jobs could be changed or redesigned in order to provide people with more satisfying and rewarding work.

In order to analyse the technical system, team members were trained by a staff specialist in work flow analysis techniques. They then developed detailed flow charts of the work, analysed floor plans and timed operations, interviewed all the employees, and developed a matrix highlighting deficiencies and variances in work patterns. Concurrently, a data base was established detailing current rates of production, backlog, absenteeism, and turnover.

In order to help them assess alternatives, the team members visited other airlines to compare their approaches to the organization of similar activities and attended trade shows to familiarize themselves with available office equipment. By November 1977, the analytical work was completed, and the project team submitted a number of recommendations to the steering committee. A comprehensive written report was prepared and presented to the committee by team members in a two-day session.

The employees on the team, whose responsibilities had been fulfilled, returned to their jobs to relieve their fellow workers. (With the help of summer students, the remaining employees had maintained processing levels during the team's full-time project work.) For some of the members, re-entry into the work situation was difficult after the excitement and challenge of the previous few months. Returning to their former boring clerical duties after discovering that they could perform complex research and analysis functions was like a giant step backward. The general manager explained that during the analysis phase "we were learning as we went along and it was hard to keep a balance between new concepts and turning out the required work".

During this time, the manager and supervisors were also meeting with the organization development consultant to try to define training needs to meet their changing roles as a result of the Work Improvement Program. Up to this point, three corporate OD consultants had been involved. The first worked behind the scenes in developing the WIP program; the second began the actual work of the program but was only in Winnipeg part-time; the third became involved full-time in mid-1977 and helped to formulate and implement the recommendations of the project team.

/Among the recommendations made to the steering committee by the project team were: a review of the lighting and air conditioning systems; a redesign of the physical space incorporating new furniture and equipment; the introduction of flextime; and a change in the work process. Two other items--changes in sick leave benefits and job training--were suggested, but these were rejected by the committee because they were felt to be contractual issues. The rest of the recommendations were approved, and implementation began in 1978.

Regional Teams. Perhaps the most significant change resulting from WIP was the proposal to reorganize the work process around employee teams, each responsible for a geographical region. Rather than each worker performing a small repetitive part of the refund process, four teams of five to six employees were to be formed to handle all aspects of refunds pertaining to a region. This was felt to be a more efficient and effective means of issuing refunds. Team members would gain an understanding of how their work related to regional operations and could deal directly with regional offices and key clients without having to involve management.

Following a successful test of the regional concept, teams were established to cover the entire operation--Western, Central, Eastern, and Atlantic (which included the Eastern U.S.A., Europe and the Caribbean area).

In effect, the job redesign gave employees more responsibility and variety in their work, increased independence as a group, and the opportunity for greater involvement in the refund process. As time went on, it became apparent that the traditional supervisory functions were redundant; so, by acceptance of a joint management-staff proposal, the teams were soon operating directly under the manager of the section through lead hands. One of the supervisors became manager of refunds shortly thereafter and the second was transferred to a higher level supervisory position. One employee described her feelings about the new concept this way:

> We have a new area to work in with more space. Our jobs have more variety, challenge and responsibility. Any time you have more responsibility and variety in your work you feel more satisfied with your job. We feel we can voice our opinions now about ways to improve work and solve work-related problems.

Just as refunds was settling into the regional work system another opportunity to participate in a change program emerged. Because the section had been involved through regular meetings in discussions of its changing technological requirements, it was to become the focal point for the introduction of a new on-line computer system. RAPID--Revenue Accounting Passenger Information Daily--was part of a five-year automation development plan to return Winnipeg Finance to the forefront of computer-assisted accounting systems in the airline industry. For refunds, it meant that claims could be entered directly into the system by the field officer and checked by the finance agents on the computer. RAPID technology eliminated many of the routine paper-handling duties in the refund process and gave the clerks instant access to the information they required. The new system was introduced by means of a video-assisted orientation program that explained in detail the scope and capacity of the technology.

In order to assess the effectiveness of the job redesign and introduction of RAPID, measurement standards were set up to give a regional breakdown of the number of refunds processed, turnaround times, backlog, absenteeism, etc. The joint outcome of the WIP and RAPID programs after one year was greatly improved productivity and fewer customer service problems. The chronic backlog was eventually eliminated, the average refund claim being processed within a week. Measures of absenteeism and turnover were among the lowest in the production areas of Winnipeg Finance. These very positive indications, as well as the increased satisfaction of the employees, convinced all concerned that their efforts had been successful.

New Sites. In 1979, two more sites started Work Improvement Programs based on the experience of refunds. This was the first step in an expansion plan eventually to involve all areas of the Winnipeg accounting office in the implementation of similar projects. Two developments during the year, however, slowed progress temporarily.

First, the contract period with the third corporate OD consultant had ended, and the decision had been made to select and train a local candidate to act in the consulting role. This was done because management felt that, despite their excellent skills and abilities in process consultation, the corporate specialists were viewed by employees with a degree of suspicion because of their "headquarters" status. As a result, the next six months were spent with reduced process help for the project sites while a local line supervisor was trained and gained experience in his new role. The local consultant was to report directly to the general manager rather than to the personnel organization so that operating management would be clearly seen as dedicated to and in charge of the program.

The benefits of this decision were, in management's view, "a more 'home grown' variety of application within the worksite" and staff who seemed to be "more at ease, more relaxed and more trusting when working with someone they know".

Second, it became apparent during this period that one of the negative aspects of the team concept in the refund section was intergroup competition which was evident in rivalry and identification with the regional team rather than with refunds as a whole. As a result, work load pressures were at times uneven and team members were reluctant to cooperate across regional boundaries. Furthermore, employees felt that the Work Improvement Program no longer had a focus in refunds and that traditional management patterns had begun to re-emerge.

Shortly thereafter, a newly appointed manager of the refund section instituted informal problem-solving sessions at various job levels across regional teams to try to address the issue of competition. These sessions were aimed at reintegrating the regional groups into a cohesive whole by discussing common work-related problems and solving them jointly. In addition, role expectation seminars have been held for the manager and lead hands, and for the lead and employees of each team, to define their expectations of each other in the performance of their jobs. These efforts have been successful in developing whole-group communication and in clarifying the various roles.

Diffusion. In evaluating the progress of the Work Improvement Program after three years of development, and in formulating directions for quality of working life efforts in the eighties, the management of Winnipeg Finance reached three key conclusions. First, "the project approach was a very slow process--we had a total of four project sites that covered only slightly more than 100 of our total clerical work force". Second, satisfying the criteria for project sites, particularly with regard to the state of readiness of management, was beginning to be difficult. "We were entering a phase where site manager/ssupervisors were technically competent in the performance of their duties, but their communication skills and overall responsiveness to a changing environment were no longer positive influences for a QWL program." Finally, as initiatives began to spread throughout the finance branch, the general manager was no longer con fident that "each successive level of management between me and the project site would be fully and positively committed to the program".

In consultation with corporate personnel and the on-site consultant, a "management awareness" campaign was begun to address management resistance at all levels. A two-day residential seminar was designed for departmental or "family units" to explore the potential benefits and risks involved in commitment to a broadly based QWL approach. "Directors, managers and supervisors had to be sold on the values of change--had to be convinced that they wouldn't be hurt in the process and, in fact, that in the long run their jobs would be enriched and made more satisfying and rewarding." The first seminar, conducted for the revenue accounting department (of which refunds is a part), elicited a positive commitment to a variety of QWL initiatives. Similar seminars are planned for other departments in the branch to try to accomplish the transition to QWL as "a way of life" rather than a series of projects with limited objectives and a defined beginning and end.

AN ANALYSIS OF THE BROADER ORGANIZATIONAL CONTEXT

In looking at the opportunities and constraints facing union and management at Air Canada, it was important to focus on the organizational setting in which these efforts are taking place. Eight interrelated domains of an organization were identified:[3]

1. Contextual Environment - This domain describes the issues and trends in the wider social and economic environments which will be important in the future (e.g., inflation, unemployment).

2. Transactional Environment - At the level relevant to the task at hand (such as the whole organization or a part of it), this domain describes the other organizations, agencies, government departments, etc., that the organization interacts with.

3. Organizational Mission - This is the philosophy of the organization, its raison d'être, what it is trying to accomplish.

4. Organizational Character - This is the organization's style of operation; its values, traditions, myths and climate.

5. Structure - This domain describes the roles and relationships of the functional units within the organization. (E.g., whether the organization is divisionalized or multi-plant, and the degree of hierarchicalization or levels of hierarchy.)

6. Governance - This domain identifies all the stakeholders having a voice in the governance of the organization; e.g., board of directors, management, unions, and claimants seeking to become constituents. Claimants can be either outside or within the organizational context, for example, customers or clients and employees.

7. Strategy - This is the set of activities by which the organization pursues its mission and by which it manages the claims and demands of the interest groups (e.g., the strategy of competing with all other companies).

8. Sociotechnical - This domain describes the internal dimensions of the organization that affect organizational life and management process.

   (W) Work System (the set of work-related activities and their organization)

   (A) Authority System

   (E) Evaluation System

   (R) Rewards and Punishment System (including payments, methods and promotion)

   (C) Communication System

   (I) Identification System (the extent to which a person identifies himself or herself with the organization)

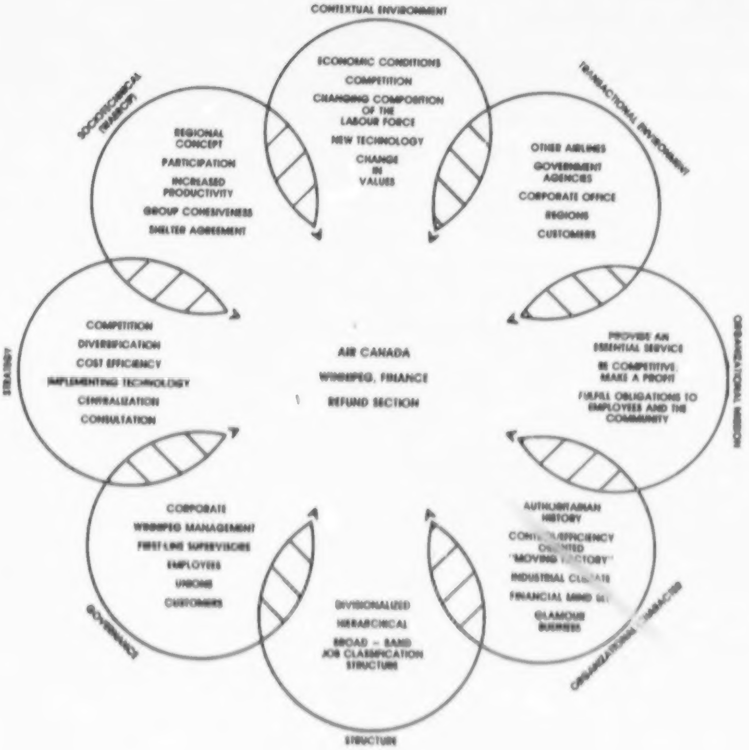
   (P) Perpetuation System (the ways the organization tries to ensure its survival, including succession)

In Figure I, these domains are outlined for Winnipeg Finance. The following analysis examines some of the implications for the diffusion of QWL from the refunds project out into the finance branch as a whole, taking into account the influence of the broader Air Canada system and the social and economic environment in which it operates.

Contextual Environment. The contextual environment provides the setting within which Air Canada operates. Trends in the social and economic context affect the airline as a whole and, in turn, all of its components. Higher costs, tighter controls, and greater economic uncertainty have forced Air Canada to raise fares and reduce inefficiencies. In addition, the automation of previously routine clerical jobs, such as many of those in Winnipeg Finance, will bring about staff reductions. Older workers are threatened by new work systems, and young workers fear losing their jobs.

FIGURE I

SUMMARY OF ORGANIZATIONAL DOMAINS AFFECTING THE REFUND SECTION


CONTEXTUAL ENVIRONMENT
ECONOMIC CONDITIONS
COMPETITION
CHANGING COMPOSITION OF THE LABOUR FORCE
NEW TECHNOLOGY
CHANGE IN VALUES
TRANSACTIONAL ENVIRONMENT
OTHER AIRLINES
GOVERNMENT AGENCIES
CORPORATE OFFICE
REGIONS
CUSTOMERS
ORGANIZATIONAL MISSION
PROVIDE AN ESSENTIAL SERVICE
BE COMPETITIVE, MAKE A PROFIT
FULFILL OBLIGATIONS TO EMPLOYEES AND THE COMMUNITY
ORGANIZATIONAL CHARACTER
AUTHORITARIAN HISTORY
CONTROL/EFFICIENCY ORIENTED "MOVING FACTORY"
INDUSTRIAL CLIMATE
FINANCIAL MIND SET
GLAMOUR BUSINESS
STRUCTURE
DIVISIONALIZED
HIERARCHICAL
BROAD – BAND JOB CLASSIFICATION STRUCTURE
GOVERNANCE
CORPORATE
WINNIPEG MANAGEMENT
FIRST LINE SUPERVISORS
EMPLOYEES
UNIONS
CUSTOMERS
STRATEGY
COMPETITION
DIVERSIFICATION
COST EFFICIENCY
IMPLEMENTING TECHNOLOGY
CENTRALIZATION
CONSULTATION
SOCIOTECHNICAL
REGIONAL CONCEPT
PARTICIPATION
INCREASED PRODUCTIVITY
GROUP COHESIVENESS
SHELTER AGREEMENT
AIR CANADA
WINNIPEG, FINANCE
REFUND SECTION

Transactional Environment. The transactional environment can be viewed from several levels. At the level of Air Canada as a whole, there is a complex net of interactions with other airlines, related industries, suppliers, many government agencies and departments, and customers. At the level of Winnipeg Finance branch, transactions take place primarily with the corporate office, the regions and customers, and on a smaller scale a similar web of transactions exists at the branch level. The refund section interacts with other sections of Winnipeg Finance, such as credit, budget, and revenue, with the regions and with customers.

The Organizational Mission. Air Canada states that its objective is "to provide a service essential to Canada -- safe, efficient and competitive air transport -- at a profit sufficient to prosper as a commercial enterprise and to satisfy our aspirations as employees and our obligations as citizens of the diverse Canadian community". The Winnipeg Finance branch's contribution towards meeting this objective is to provide accounting services to the corporate office, the regions and customers as efficiently as possible. The refund section's purpose is the efficient processing of refunds to Air Canada customers.

The mission of the Work Improvement Program, as seen by branch management in 1977, was to improve productivity and morale after a long period of labour unrest. At the same time, some of the refund section employees who had been supporters of the original decertified union were in an uncomfortable position since they were being asked to cooperate with management and with the new union in the Work Improvement Program. The new union, on the other hand, sensing the divided loyalties of some employees, and not wanting to aggravate them, gave its support to the WIP effort in the refund section but remained low-key, at least in the early stages of the program.

The Organizational Character. Although Air Canada expanded rapidly through the period of growth in air travel, recent economic and social constraints have limited its markets and increased the need for a more flexible, adaptable, leaner organization. In 1977, approximately 540 clerical workers, mostly female, were employed at

Winnipeg Finance. By 1980 that number had been reduced to 520, and to 500 by August 1981. The branch had a history of authoritarian leadership, which was changing to a more participative style. The change was approached with some misgivings, particularly by older employees, who had been used to authoritarian structures, or by those who associate accounting and financial functions with strict control procedures.

The WIP program in refunds was an experiment in participative job design and management, moving away from the production-line climate that characterized the section before 1977. The refund group was felt to be an ideal site for such an experiment because worker satisfaction and morale were low, productivity and work backlogs were both problems, and finally, the group was sufficiently isolated in its function from the rest of the branch that its progress could be easily monitored and measured.

The Organizational Structure. Each division of Air Canada has a number of branches, each controlled by a general manager. Winnipeg Finance is one such branch. Under the general manager are the directors of various departments such as general accounting, revenue accounting and credit operations, who in turn are in charge of several sections such as refund services and credit services, headed by managers.

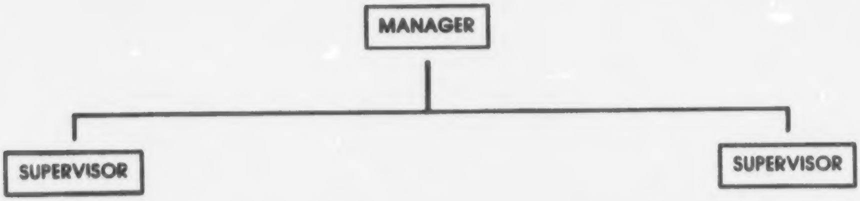
Figure II outlines the structure of the refund services section before and after the Work Improvement Program. The supervisory level was eliminated in the reorganization, the lead agents now report to the manager for the work flow and distribution on each regional team. The leads are unionized employees, and are therefore not involved with disciplinary procedures. They are designated by management and are paid a premium for performing the lead agent role.

The Governance. There are a number of stakeholders who have influenced the Work Improvement Program, ranging from corporate management to the employees themselves. Top management, for example, has been interested in fostering a shift toward a more participative organization but has not yet determined an approach for

FIGURE II

REFUND SECTION — BEFORE WIP

approximately 35 employees

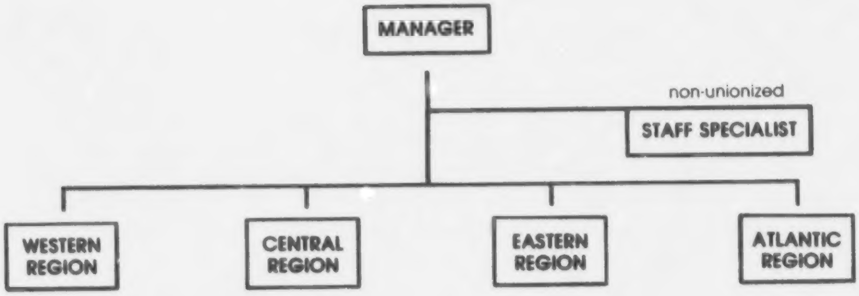

MANAGER
SUPERVISOR
SUPERVISOR

- Simple cash refunds
- Mail
- Lost tickets
- All lower grouped employees in production line environment (mostly levels 1 to 3 clerks plus Leads)

- Deferred refunds
- Complex auditing of tariffs
- Senior clerical staff in production line environment (mostly level 4 clerks plus Leads)

REFUND SECTION REORGANIZATION

approximately 28 employees


MANAGER
non-unionized
STAFF SPECIALIST
WESTERN REGION
CENTRAL REGION
EASTERN REGION
ATLANTIC REGION

- Each region headed by a lead clerk
- Work and clerical levels evenly distributed in each region (Levels 1 to 4)
- Independent work groups, each including all functions

achieving this transition. Thus, change efforts such as Work Improvement Programs have been viewed as high risk experiments oriented toward short-term success. A failure to produce measurable improvements could reflect on management's ability to meet corporate goals.

Management at the branch level seems to have been caught in the middle -- with new requirements for participation from top management, and employees demanding more autonomy and participation. They have felt compelled to change their management "style" and not simply to adjust their mode of operation. First line supervisors have feared the threat of job loss with the elimination of the supervisory level in the reorganization of the refund section. In this case, however, the individuals involved were reassigned, without loss of stature.

With the removal of the supervisory level, the role of lead agents has become an ambiguous one. They have acquired the responsibility for ensuring that work gets done without the authority to take steps if it does not. In many ways, lead agents view themselves as "supervisors without authority".

The employees in the refund section have had a historic mistrust of management. The opportunity to participate in the Work Improvement Program was seen as a genuine attempt to improve this relationship. The employee team was responsible for initiating a number of changes, which led to increased job satisfaction and productivity. Unfortunately, there was no long-range approach for maintaining the participative relationships and, when the team was disbanded, employees of the section felt disappointed and let down.

The union, whose history in the finance branch was short, found it difficult, at least in the beginning, to become involved in determining the long-range philosophy of the WIP program. Management was viewed as the decision maker in the Work Improvement Program, while the union participated on the steering committee, and acted as a monitor to make sure that bargaining issues were not enchroached upon.

TABLE I

MAJOR STAKEHOLDERS' VIEWS OF WORK IMPROVEMENT PROGRAM

SOCIOTECHNICAL DOMAIN	MANAGEMENT	EMPLOYEES IN REFUNDS	UNION
(W) **Work System** Change to Regional Teams	Impressed by employees, ability to do their own Work Flow analysis, and job redesign Concerned about getting employees back to work, and about team meetings becoming non-productive Management introduced task-related problem solving	Learning and doing Work Flow analysis was exciting. Disappointed that their involvement diminished after reorganization Felt abandoned by consultants Morale improved when some process issues were addressed	Some concern about a few proposed recommendations, since they were contractual issues
(A) **Authority System** Move to greater autonomy and elimination of supervisory level	Showed trust in the group, introduced flextime; gave regional teams time for meetings, removed one level of supervision. Control function was felt by some to have been eroded. Some felt need to limit the group's autonomy	Liked the greater autonomy of the redesign phase, where they were reporting to a joint union management steering committee Lead hands expressed some concern about unclear understanding of their role	Some concern about their changing role under this new system Not sure how to deal with concerns expressed by the lead hands
(E) **Evaluation System** MTM standards, closer monitoring of results feedback.	Introduced notion of performance standards Proud to point out that this is the most efficient refund section of any airline Some new evalution criteria — employees' ability to deal with customers and regions, also productivity measurement of Regional Teams' output	Interested in participating in monitoring of their performance Feel that they do not receive enough positive feedback from management Lead hands have ambiguous role in being responsible for attainment of standards. Pride of achievement tempered by the emergence of inter-group competition	Concern that increased productivity leads to decrease in staffing levels
(R) **Reward and Punishment System**	More autonomy given to employees in design stages Tightening of control when group meetings were seen as being non-productive in maintenance stage	Intrinsic rewards of doing a good job Jobs more interesting Feel they are an elite group on the one hand, but do not feel sufficiently rewarded for their higher productivity on the other Employees of other sections felt they were being denied opportunities	Union ensures that bargaining issues will not be dealt with in QWL activities

TABLE I (continued)

MAJOR STAKEHOLDERS' VIEWS OF WORK IMPROVEMENT PROGRAM

SOCIOTECHNICAL DOMAIN	MANAGEMENT	EMPLOYEES IN REFUNDS	UNION
(C) **Communication System**	More of an "open-door" policy, but tendency to use lead hands as surrogate supervisors Consultant initiated task-oriented problem-solving and role expectation workshops. Awareness that out of the WP efforts a new paradigm was emerging. More QWL-related values	Communications with management greatly improved. Some problems with intra-group process as well as inter group. Lead agents can be bypassed in communications process or they can be perceived to block information flow Refund employees feel the need for increased communications with other sections and would like to play a key role in the diffusion process	There have been some lapses in communication with the refund group. Difficult role for union when caught in the middle between what refund employees want to do and how that might affect the contract for other employees
(I) **Identification System**	Employees felt that by choosing the refund section as project site, management had isolated it from other sections Management encouraged inter-regional competition and because of changes of consultants, process issues were not always addressed	Prior to 77, refund employees identified with previous union. WP gave employees a feeling of belonging and identifying more readily with their regional family groups. They feel they need to break out of their "social island" status	• Cautious relation with refund employees • Trying to overcome traditional confrontations and mistrust
(P) **Perpetuation System** From WP to QWL as a way of life	Program originally introduced to improve relations and productivity Helped to introduce new technology Management concerned with developing from a "project" to a "way of Life": a diffusion and perpetuation strategy as well as definition of the boundaries around participation	Employees of other sections expressed interest in similar projects Employees were eager to participate in redesign phases of projects Employees expect clearer objectives and guidelines, and hope to help define a new philosophy	Union representatives meet regularly with process consultant and are informed of progress. Union representation on steering committee, is looking for ways of extending refund experiment to other sections, but with a greater participation in the change process. Concerned about issues of automation, attrition, maternity leave

The three corporate consultants who from 1977 to 1979 were assigned to assist line management in the transition have been actively, though intermittently, involved from the outset. They guided the change process, acting as third-party advisors to different clients -- top management, management and supervisors of the section, and the employees themselves.

The Strategy. Air Canada undertakes many activities in working toward its objective of efficient air transportation. For example, it competes with other airlines in offering service and satisfaction to air travellers, and recently it has diversified into the holiday/leisure industry. It has introduced new technology to eliminate tedious work and improve customer service, and is adopting a more consultative/participative approach to management, in order to better utilize its human resources. To this effect, in October 1979 top management published a set of six basic operating principles for the 1980s: Professionalism, Teamwork, Integrity, Candour, Equality, Adaptability.

The Sociotechnical Domain. Up to this point, we have outlined the history of the Work Improvement Program in Winnipeg Finance in terms of the interrelationships with the broader organizational setting within which quality of working life efforts are taking place. The one domain we have not yet touched on deals with the internal sociotechnical dimensions of the work organization in the refund section. It includes how jobs and people are affected by new technology, management style and authority systems, evaluation and definition of productivity and effectiveness, reward and punishment systems, communications, the way employees identify with the organization, and finally, how the organization diffuses new values in order to ensure its survival.

As our analysis is specifically of the refund section of Winnipeg Finance, we find that many of the issues and concerns expressed by or affecting the different stakeholders fall within the sociotechnical domain. In order to illustrate this more clearly, we have summarized how the main stakeholders -- management, employees and the union -- view the sociotechnical dimensions.

SUMMARY AND CONCLUSIONS

The history of the Work Improvement Program shows a dramatic change in the labour relations climate in Winnipeg Finance. Its evolution and development indicates a commitment to improving the quality of working life for all employees of the branch. Looking at the organizational relations system as a whole, it becomes apparent that this is not just the story of the refund section, but the account of an organization in transition. Air Canada appears to be moving from the old way to a new way, struggling to meet the demands placed on it by the environment. These pressures can be seen both inside and outside the organization. They involve a change in values, a new way of looking at people and work.

Air Canada recognizes the need to adapt to the changing environment, but is faced with several dilemmas. Although the airline has endorsed new workplace values, it has not yet openly committed itself to a process for accomplishing this transition. It is not surprising that in an uncertain climate with no clear solutions, this commitment is difficult to achieve, and change efforts have tended to become encapsulated. As a result, for those undertaking change the process is one of high personal risk. While there are clear advantages to be gained from a successful project, including increased productivity and an improved labour relations climate, there still remain some unanswered questions as to the impact of these changes on the total system. This could explain management's retaining strict control of change, and trying to develop new measurement tools and standards with which to evaluate the success of redesign projects.

Technological innovation is a necessary strategy for Air Canada to adopt in order to remain competitive. It also eliminates much of the routine work. On the other hand, introducing new technology means redefining jobs, retraining employees, and dealing with the real and imagined threat to their security. It also requires long-range plans for the integration of new values and highly automated work.

Air Canada is also faced with a mixed culture, which causes value clashes at many levels. Young employees often hold participative values and demand a say in how they do their work. This frequently is viewed as threatening by older workers who are accustomed to traditional methods and are reluctant to recognize changes in the "rules of the game". In fact, QWL can be seen as a change in the game! More sophisticated and better-educated employees are entering the work force with a very different philosophy of work. For them, too, the old way is unacceptable, and they are seeking changes. Managers on the other hand see that the traditional middle management control function is being eroded. New roles and functions are unclear, managers express the feeling of being "squeezed" between demands for more autonomy from subordinates and expectations of higher productivity from the organization. The result is a fundamental resistance to change, which is being addressed by Winnipeg Finance through its management awareness seminars.

Women are another dimension of the mixed culture. Their traditional acceptance of tedious, repetitive, unfulfilling jobs with little chance for promotion is being questioned, as is the assumption that women are working for "pin money" and are not interested in long-term careers. Yet management positions are still largely male-dominated.

All of these cultural elements combine to form a complex of social forces pushing for and pulling against change efforts, thus making communications difficult between people who have different frames of reference and varying expectations.

In conclusion, what implications for diffusion of quality of working life can be drawn from Air Canada's Work Improvement Program in Winnipeg Finance branch? The organization appears to have reached a decisive point in its transition. The resolution of the dilemmas it faces will depend on the choices it makes. As we have seen, these choices are difficult ones.

In order to remove some of the risk in undertaking change, Air Canada must openly support and reward efforts to adopt new work values and behaviour. This long-term support would reduce uncertainty and fear of failure, and would encourage all the participants to make change, innovation and learning a way of life.

Today, the processes involved in the transition to new values are more clearly documented and understood than they were in 1977, when Winnipeg Finance began its program. At that time, the corporate consultants felt that it was a "seat of the pants" process of trial and error without much theory or experience to draw on. It was primarily because of the ability of the corporate consultants to expand the psycho-social components of existing theories of work improvement, together with the vision of the new general manager and his willingness to take some risks, that such impressive results were obtained so quickly.

The union can also play a more substantial part in the QWL diffusion effort. As Hackman[2] points out, involvement can be at several levels--the initiation of QWL efforts, joint union-management sponsorship and responsibility for redesign projects, and a more marginal role of collecting and interpreting data and evaluating the effects of change on union members. In the refund project it was unrealistic for the new union to be actively involved beyond being kept informed and protecting employee rights and contractual issues. However, the union should now be in a position to consider these alternatives. "Without the active involvement of organized labour, it is doubtful that work redesign ever can evolve into a strategy for change that actively develops--not just utilizes--human resources in organization.[3]

Employees, too, must see QWL as an ongoing commitment to new values of work and not a "one-shot" attempt to improve productivity. The expectations of all the participants must be jointly worked through and reassessed periodically. It is equally important to make employees aware that more interesting and challenging work can be achieved through job redesign. In the refund section, for example, employees tended to focus on physical changes which they could both see and understand, until helped by the consultants to analyse their own jobs, the work flow, and the overall purpose of the section's work. Once in possession of this larger picture, the employees responded by proposing creative alternative arrangements. While there is no denying the importance of physical working conditions, in the long run they cannot alleviate the monotony and boredom of the job itself.

Finally, the impact of impending technological change must be recognized. Long-term strategies need to be developed for dealing with the displacement which may occur because of automation. In the short term, attrition will partially absorb the impact, but projections suggest that functions like those carried out by Winnipeg Finance will change dramatically in the longer term, particularly affecting clerical jobs presently held largely by women.

Collaboration between management and labour in the resolution of these problems is an essential element in addressing the issues of the mixed cultures in the organization. This effort would also alleviate the uncertainty inherent in the changes that the individual as well as the organization will surely face.

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The material for this paper was gathered over a period of several days of interviews in Winnipeg in December 1980 and at subsequent meetings in the spring of 1981 with corporate personnel. At the end of 1981, a feedback session with employees of the refund section led to the final draft of this case study. Our thanks are extended to Air Canada, the employees of the refund section, to the management and the union representa tives of Winnipeg Finance for their openness and cooperation.

IMPROVING SUPERVISORY QUALITY OF WORK LIFE THROUGH SOCIOTECHNICAL DESIGN:

MULTI-CRAFT SUPERVISION IN AN OIL REFINERY

by

Brian Tucker

and

James C. Taylor

ABSTRACT

This case describes a job redesign project within the maintenance department of a modern oil refinery in Alberta. A representative task force utilized an orthodox sociotechnical systems analysis and redesign process to examine and redesign the organization and its work flow. Particular attention was given to the nature of supervisory jobs. The implementation of this study was only partially successful because of some supervisory resistance to proposed changes. This case suggests that "power" is an important dimension of organizational analysis and design.

INTRODUCTION

The technology of oil refining has changed considerably over the history of that industry. It started as a batch-production process of boiling crude oil in big drums or "kettles" until the operator's experience told him that the product was "cooked" and could be shipped, whereupon the kettle could be cooled down, emptied, cleaned and prepared for the next load. It has progressed to the level of a continuous process, where virtually every drop of the converted crude oil has a practical use and a high economic value, and where conversion processes are highly automated and integrated. The oil refinery of today has complex arrays of towers, pumps, furnaces and controls, hundreds of kilometres of piping (so operators rarely see the oil itself), and quiet computers controlling what one expert has described as "mouse-milk" runs of custom-made products.[1]

The technology of oil refining has many implications for the work of the people in that industry. Naturally, as the technology has changed from batch production to continuous processing, those implications have changed. The work of the process operator has been transformed from exercising the craft of "cooking" crude oil to operating and monitoring computers on an ongoing basis, with very little physical work.

The work of maintaining refinery equipment and facilities in safe, reliable operating conditions, has also changed. The economics and intensity of continuous processing, the technological integration of operating units, climatic conditions, health and environmental hazards, the instability of crude supplies and costs, and unpredictable events all heighten the importance of refinery maintenance work (especially preventive maintenance) and the need to respond effectively and quickly to equipment malfunction or breakdown. If a process operating unit breaks down, it may change or interrupt the unit's petrochemical process, as well as disrupt the processes on integrated or related units. There are often severe economic costs involved, and there can be danger to lives, equipment, and the environment. Hence preventive maintenance is stressed.

Naturally, managers in the refining business appreciate the need to have an adequate maintenance response capability on hand at all times. Staffing a refinery maintenance function to meet the requirements for both emergency repairs and routine (preventive) maintenance efficiently, however, is quite a challenge. What is the minimum number of people and the right mix of trade skills required to meet emergency demands when they arise and also to provide an appropriate level of service for routine maintenance? Since this question can be answered only through effective coordination, maintenance managers constantly apply pressure on their subordinates for productivity and service.

Supervising maintenance work in such circumstances is no easy task. Today's refinery maintenance supervisor needs to find the trade skills required (many of which have only emerged in the last decade or so), at the right time and in the right volumes and mix, both to respond to operating problems and to perform routine maintenance. He finds himself setting aside his backlog of less urgent work to deal with high priority conditions as they arise, shuffling maintenance tradespeople between work groups as needed, and encouraging people who have invested much of their working lives and self-esteem in a strong trade identity, to cross-craft. Providing some stability to his work group under conditions such as these can be a stressful and frustrating task.

The present study arose out of the concerns of the maintenance manager at one oil refinery to improve the productivity of his department and to enhance the quality of working life of his staff. The manager had tried several other programs to improve maintenance productivity with some success in the past, but felt that a major change was needed. He became convinced that a review of the systemic aspects of refinery maintenance work, resulting in the redesign of jobs, was appropriate. Therefore, he initiated a sociotechnical systems analysis and redesign project in his department.

It has often been observed that the advancement of technology (supported by the economics of scale) has led to the fragmentation of work. Excessive specialization of fragmented tasks even in service organizations has led to the alienation of workers from their jobs, job dissatisfaction on unprecedented scales, and lower customer satisfaction and service levels.

The late A.T.M. Wilson2 pointed out that many recent experiments with improving quality of working life have sought to diminish the stress and inefficiency created by fragmented work and mechanistic organizations. In spite of the general support for reducing job pressures and worker inefficiency among management personnel, Wilson observed some resistance by first line supervisors to QWL experimentation. He further noted that at least part of the supervisors' resistance to proposed changes is a perception of a "zero-sum" conflict between the supervisor and his workers. Supervisors were afraid that if subordinates "win" more authority, participation in, and discretion for decision making with regard to the work they do, then they (the supervisors) must lose a like amount of valued authority and discretion.

Wilson found that some successful QWL developments (notably sociotechnical designs) provide a quite different pattern of supervisory attitudes. Such systematic redesign of production units allowed for a gradual reorientation of supervisory roles and training for changed supervisory responsibilities so that the time, attention, and values of supervisors were turned away from the direct control of subordinates' tasks and toward the larger issues of the organizational unit as a sociotechnical system. In successful QWL innovations, task elements were often recombined so that responsibility for getting the work done and for managing the working relationships between groups and between the organization and its complex environment were more evenly shared between the supervisor and his work group.

Wilson's paper illuminates another important point about QWL innovations which is relevant to the present case. He reported that experience has underlined the importance of undertaking work redesign innovations not as an unusual project, but as part of the normal adaptive and developmental activities of the organization. In order to take full advantage of this phenomenon, it is essential to employ internal innovators (working with the grain of the system, as it were). Such facilitators of change can be internal experts in a methodology (such as sociotechnical analysis) or they can be operating members of the system who are guided in the change process by a consultant.

The present case involves the joint activities of an internal consultant and a task force of supervisors and tradesmen, who have undertaken a sociotechnical analysis and design of their organization in response to gradual organizational changes, increasing pressures and historical events. These internal innovators have received technical guidance and help from an external consultant, but the issues they face (although important) are more routine than crisis-oriented. The internal task force and those they represent are thus in control of their own destiny, rather than in the hands of their external consultant.

The Setting for the Study

This change project involves a large, modern oil refinery in Alberta. The location is significant for a number of reasons. Alberta has had a very buoyant economy based largely on natural resources, and a future sprinkled with many potential multi-billion dollar construction projects. There is a high degree of political stability within the province, but frequent turmoil in the relationships between Alberta and Central Canada. Socially, Alberta is a rapidly growing province with a relatively low unemployment rate and a growing cosmopolitan culture. In short, the sociopolitical and economic environments may be described as turbulent.[3]

Within this turbulent environment, there are certain stabilizing forces. This refinery is the biggest one in Western Canada and much of the Canadian West depends on it for its refined oil. Long, cold winters leave little time for outside work to be done in relative comfort.

These two factors compound the traditional psychological need to preserve a system that is working well and reinforce operating stability and reliability.

The refinery itself is a pacesetter in performance. It was constructed in the early 1970s and is equipped with state-of-the-art technology and some of the ablest personnel in the company. In terms of throughput costs, meeting delivery schedules, and environmental and personnel protection, it is among the best in the world. Maintaining operating performance within a turbulent, competitive environment, however, is the key to its continued success. This adds pressure to make operations reliable and avoid risk to the status quo.

The refinery organization is structured along lines traditional to the industry, with major maintenance, process and technical departments, plus other support groups such as safety, security, medical, and employee relations (see Figure I). The process department operates the refining facilities on a 24-hours-a-day, year-round basis, and is the major client of the maintenance department. The technical department provides technical, business and product supply services, including computer operations and quality control.

A construction management group is also associated with the refinery organization. This group is responsible for overseeing the construction of major new facilities for the company, in the refinery and in the surrounding region. In managing such projects, this group may introduce contractor personnel into the refinery for construction activities, particularly during the summer months.

The refinery maintenance department consists largely of craftsmen in instrumenting, machining, pipefitting, boilermaking, welding, and electrical trades. The staff level is judged by management to be sufficient to deal with the minimum level of routine, on-stream, preventive maintenance and emergency work throughout the year. For peak workloads during the summer, such as shutdown activities (and certain functions for which it is not economical to retain staff on a year-round basis), this manpower is supplemented by contract personnel. At times, there may be two or three times more contractors than regular company employees requiring supervision during these peak periods. Thus, tradesmen with the potential and desire for career advancement may have the opportunity to supervise or plan the work of others (usually contractors) for two or three months a year.

The maintenance department is subdivided into four sections: planning, specialty trades, field services, and shutdown activities. Each of these sections is headed by a second level supervisor.

The planning section is responsible for analysing what needs to be done in order to deal with a particular request for maintenance work. People in this section then order the necessary materials, equipment and special tools, estimate manpower requirements, and schedule the workload in general terms. The planners in this section are salaried personnel, and the job role is used as a primary training ground in the development of permanent first level supervisors.

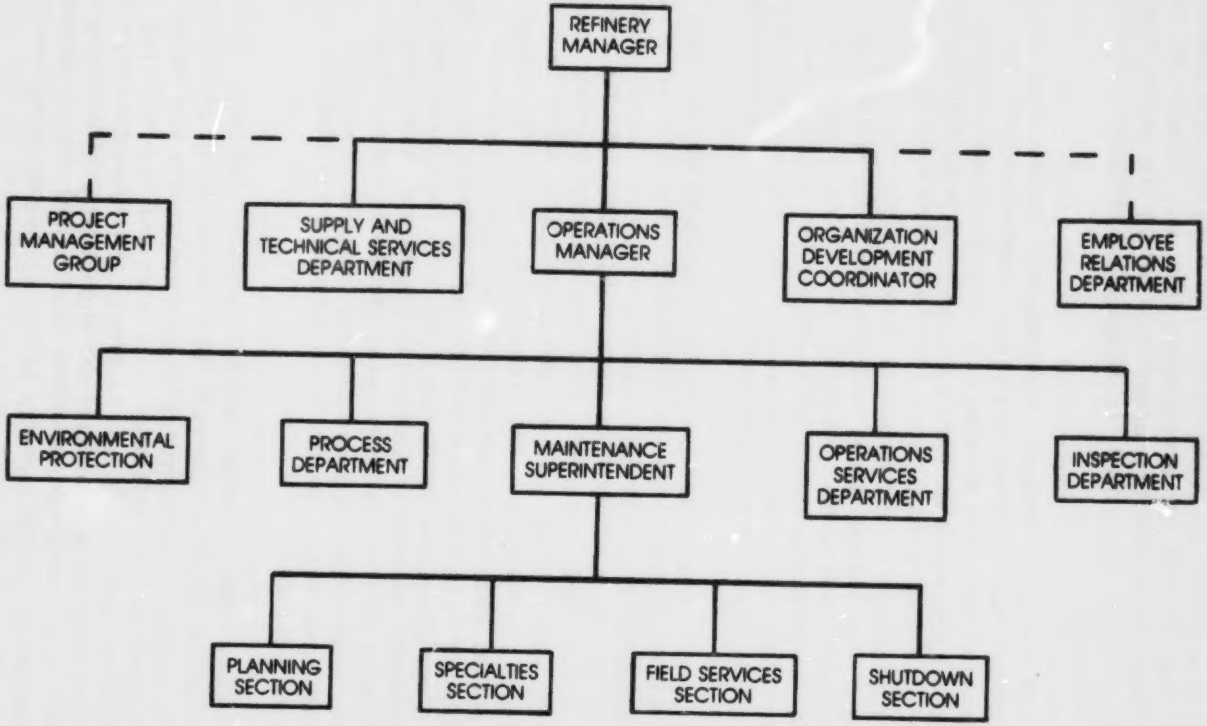
In this refinery, certain trades (instrument, analyser and electrical) have been designed as specialists and are supervised under a single-trade concept. The nature of their work is often more white-collar than blue-collar, and they regard themselves as technicians. (Tradesmen in other jobs are officially called "technicians" also, but their work is more traditionally blue-collar in nature.)

In the field services section, tradesmen may be attached to area groups around the refinery or associated with the mechanical department's workshops. Within the area groups, cross-crafting is practised to some degree, while the shops' personnel tend to work within a single trade, such as machining. The area groups look to the shops for specific support in some fields, and to both the shops and to other area groups for manpower support as dictated by workload fluctuations.

Lastly, the shutdown group is a temporary organization that draws its staff largely from the regular employees in the other sections and from contractors for major shutdowns. Normally, this is where tradesmen/ technicians are utilized as temporary supervisors (at the

FIGURE I

THE REFINERY ORGANIZATION STRUCTURE


REFINERY MANAGER
PROJECT MANAGEMENT GROUP
SUPPLY AND TECHNICAL SERVICES DEPARTMENT
OPERATIONS MANAGER
ORGANIZATION DEVELOPMENT COORDINATOR
EMPLOYEE RELATIONS DEPARTMENT
ENVIRONMENTAL PROTECTION
PROCESS DEPARTMENT
MAINTENANCE SUPERINTENDENT
OPERATIONS SERVICES DEPARTMENT
INSPECTION DEPARTMENT
PLANNING SECTION
SPECIALTIES SECTION
FIELD SERVICES SECTION
SHUTDOWN SECTION

first line level) or planners for the duration of a shutdown and the period of preparation for it. Many of these contract personnel are unionized (while the plant itself is not), thus creating additional challenges for the supervisors.

The critical role in this refinery maintenance department is that of the first line supervisor in the field organization. He is the one who receives requests for maintenance work of various priorities from the client and the planning section, and coordinates the daily activities of his group to accommodate both. The workload of the group, at any one time, may include a backlog of preventive and routine maintenance, minor repair and modification work, superseded by emergencies which arise in the course of refinery operations. The maintenance department employs about a dozen first line field supervisors.

The concerns of people in this field supervisory role in the refinery came to a head in the summer of 1978, prompting the current study. Supervisors, through informal discussions and an organizational health survey, had told their managers that the quality of their working lives was slowly deteriorating. They were concerned about the problems of scheduling daily activities and juggling manpower between areas on a day-to-day basis; they felt unable, with a fluctuating work group, to pay enough attention to training and development; they were confused at times about the planning and supervising roles; and they felt the need for better compensation for the time they spent beyond regular working hours planning their work and completing the necessary paperwork.

The maintenance superintendent initiated a socio-technical systems analysis and job redesign project within the refinery maintenance department. Its objectives were to improve the effective utilization of the existing maintenance systems (and, hence, the productivity of his department), and to improve the quality of working life of his employees, particularly his supervisory personnel. The study got under way in the spring of 1979.

Project Organization Structure

The first task of the maintenance superintendent, once he had gained management support for the study, was to organize resources and plan the conduct of the study. He contracted with an external resource person to provide consulting services on the sociotechnical systems analysis and redesign process.

The basic work of the study was to be performed by a task force consisting of three or four tradesmen, a planner, a first line supervisor, and a second line supervisor. The refinery organizational development coordinator was also to be a member of the task force, and was to provide leadership for the group and liaison with the external consultant. Both he and the second line supervisor involved were given additional external training in the sociotechnical systems analysis and redesign process before the study commenced.

The hourly paid members of the task force were volunteers selected by management. Meetings of the tradesmen were held to encourage volunteers and to outline the purpose and expectations of participants in the study (about 30% of the staff volunteered). Employees elected delegates to the plant employee relations council, who might be compared to union stewards; they participated in the process by chairing discussions on the project, although none of them chose to volunteer themselves. The maintenance superintendent made the final selection of task force hourly paid members from the volunteers, on the basis of his perception of their ability to represent their trade groups and their potential to contribute fully and actively to the study.

Salaried participants in the task force were chosen by the superintendent on the basis of their perceived ability to contribute to the study and to balance the trades backgrounds of workers. The second level supervisor selected was in charge of the specialties section; he had also recently been assigned responsibilities for coordinating anticipated changes in the maintenance computer systems. The first line supervisor chosen was newly appointed, and in charge of one of the smaller field groups. The planner selected was a man of considerable field experience as a tradesman, but was also a fairly new supervisor.

Besides the task force, the only structural change instituted for the study was a "support and review group". This group consisted of the maintenance second line supervisors who were not members of the task force, and management representatives of the departments with whom the maintenance department interfaced. Part way through the study, the refinery top management group and the chairman and vice-chairman of the employee-elected delegates also joined this group to avoid duplication in communications. The functions of this group were to facilitate the collection of data about the maintenance department across organizational boundaries, to provide an integrative perspective on how the maintenance subsystem related to other refinery systems, and to prepare a way for the resolution of any interdepartmental issues.

A key element of the project was the role of the client manager--the maintenance superintendent. While the initiator of the study was very results-oriented, his exposure to the concepts of sociotechnical systems analysis and design had heightened his sensitivity to the processes involved. He expressed strong support for the task force throughout the study and, as potential recommendations started to emerge during the early stages of the study, was willing to wait for recommendations based on the complete analysis and redesign before acting on them.

Unfortunately, part of the way through the study, the original client was transferred to other work within the company. His successor was one of the second level supervisors within the department who had not been closely involved in the study. The orientation of the new superintendent to his new role, and other emerging priorities later, significantly delayed the acceptance and implementation of the task force redesign recommendations.

The Analysis Process

The process used by the task force, in this case, followed classical sociotechnical systems analysis and redesign lines.[4] The activity flow is shown in Figure II.

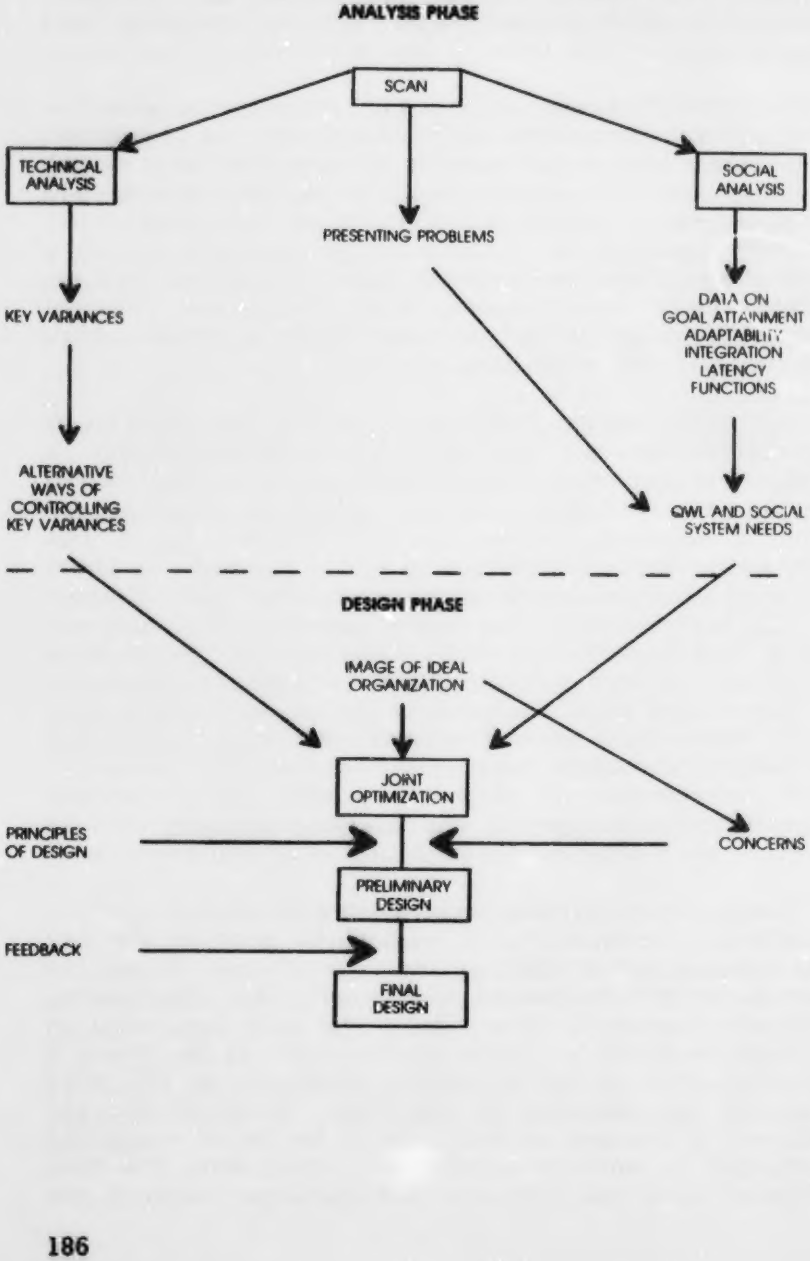
The "scan" provided the task force with a sociotechnical systems orientation to the study. It identified: the purpose of the maintenance department; what social objectives might be inferred from the way it was managed; the boundaries, inputs and outputs of the department; and its current or "presenting" problems. The "presenting" problems confirmed management's impressions of supervisory concerns and frustrations, but included tradesmen's concerns about cross-crafting, wages, high movement between work groups, etc.

Technical Systems Analysis. The scan was followed by a technical systems analysis, which examined how a request for maintenance work to be done was transformed into a known fulfilled request. Some 24 variances, or factors significantly influencing the effectiveness of unit operations, were identified in this process. These variances were evaluated in terms of their impact (direct or indirect) on costs, manpower requirements, and the quality and quantity of work done in the maintenance department to sort out the "key variances". The key variances were then analysed in terms of: where they arose, where they were first observed, what information was needed to control them, and how they were presently being controlled. At this time, also, some tentative suggestions for changes to the current technology and job structure were obtained through brainstorming sessions.

The technical systems analysis confirmed the external consultant's hypothesis that control of most of the key variances lay in the hands of the supervisors. It was the supervisors who challenged the priority the client placed on a work request. They were the ones who went to obtain more complete details of the work to be done, if needed. They tried to adjust manpower in the work groups to the workload at the time. They advised the tradesmen of changes in the scope of the job or responded to changes in working conditions. They were the ones who made sure that materials and equipment were at the

FIGURE II

THE SOCIOTECHNICAL SYSTEMS ANALYSIS AND DESIGN PROCESSES


ANALYSIS PHASE
SCAN
TECHNICAL ANALYSIS
PRESENTING PROBLEMS
SOCIAL ANALYSIS
KEY VARIANCES
DATA ON
GOAL ATTAINMENT
ADAPTABILITY
INTEGRATION
LATENCY
FUNCTIONS
ALTERNATIVE WAYS OF CONTROLLING KEY VARIANCES
QWL AND SOCIAL SYSTEM NEEDS
DESIGN PHASE
IMAGE OF IDEAL ORGANIZATION
JOINT OPTIMIZATION
PRINCIPLES OF DESIGN
CONCERNS
PRELIMINARY DESIGN
FEEDBACK
FINAL DESIGN

job site when they were needed, and they were the ones who monitored the quality of the tradesmen's work. The job of the first line supervisors was, in practice, to try to control the key variances in getting the job done, to adapt to changes in working conditions and to coordinate the work of their work groups. They were the major controllers (sometimes with responsibility shared by the planner) of the variances in the cost, staffing, quantity, and quality of work done in the maintenance department.

At this time, also, the idea of restructuring the field maintenance organization emerged. Instead of the field maintenance units being organized on a geographical, process-unit basis, a functional structure was considered. It was suggested that the responsibility for the major emergency and repair work be transferred from the area groups to a proposed mobile central pool. The mobile central pool would be a kind of "S.W.A.T. team" and operate throughout the refinery on all emergencies and major repairs. Reactions to this concept, at this time, were generally positive. No negative supervisory reaction was reported.

Social Systems Analysis. The analysis of the maintenance department's social system was carried out during the month of May, 1979. Data was collected through interviews on how the maintenance department attained goals, adapted to change, integrated disparate efforts and maximized its own performance capabilities.5 This was collected at the supervisor-subordinate, intra- and intergroup, and interdepartmental levels. Information was also sought on the desirability of certain job characteristics as a means of establishing criteria for defining the quality of working life for people in the maintenance department. A random sample of employees was involved in this survey, but all supervisory personnel were included.

The social systems analysis clarified the position of supervisors within the department. While supervisors said they were generally satisfied with their jobs and liked the challenges they faced in getting their jobs done, they did admit to several areas of concern. These included:

1. Unplanned changes in their work schedules caused by personnel shortages, training, shutdown work, vacations, and manpower reassignments.

2. The need for clearer definition of their roles and authority limits and relevant rules, regulations and policies.

3. More support and less interference from their own superiors. In particular, they wanted more manpower for their work group and more flexibility and openness on the part of their managers.

4. Better pay and working conditions, including a shorter working week and compensation for hours worked beyond the basic workweek.

5. More time to become technically familiar with the operating units they were servicing.

6. Better and more timely management training.

Supervisors' concerns about their jobs came out clearly in what they identified as their QWL needs. The supervisors appreciated the challenges of their work and the position of influence they had over the effectiveness of the maintenance department, but felt somewhat lacking with regard to the quality of their working life.

On the tradesman's side, the QWL picture was more positive. The majority of tradesmen felt quite good about their jobs. Some wanted more variety in the work, including more of the kind of job rotation between field areas they currently experienced; others wanted less job rotation and more stability within area work groups. There were general feelings that some construction-type work would be a welcome addition to, or change from, their regular routine maintenance work. There was a fear that too much cross-crafting was a threat to their trade identity.

When the results of the social systems analysis were fed back to the employees (as results were after each significant phase of the study), some strong feelings were generated. The employee-elected delegates claimed that tradesmen's satisfaction had not been accurately represented. At their suggestion, tradesmen were invited to submit any additional concerns they had about the social conditions within the maintenance department in writing to the task force. Of the 44 letters received, 33 pointed to the need for improved pay and fringe benefits. All other feedback confirmed the established findings of the task force's social systems analysis. (Shortly afterwards, incidentally, the tradesmen were given a small wage increase in order to retain the company's wage position relative to local industry.)

DESIGN, IMPLEMENTATION, AND EVALUATION

The Design Process

The design stage of the study began with the development by members of the task force of images of the ideal maintenance department. Principles of sociotechnical design[6] and proposed ingredients of a good job[7] were used to enhance this process and develop an image of what might be a design to strive for.

They then examined the brainstormed ideas on how to improve control over the key variances, and evaluated these suggestions in the light of meeting the QWL needs. Some synectics techniques[8] were used to help develop creative solutions to problems arising when the design elements of the task force subgroups conflicted with the needs of different constituents.

The sub-elements of the design were then evaluated against the image of the ideal maintenance department and integrated into a preliminary design.

The preliminary design recommendations suggested major changes to the way work was done in the maintenance department. Key elements included:

1. An on-line interactive computer system to provide users (both process and maintenance) directly with data on work requested.

2. The reduction of the workload of area groups to routine maintenance and minor emergencies.

3. The establishment of a central mobile maintenance team to deal with major emergencies wherever they occurred in the plant. Less-urgent and interruptable construction work was to be negotiated as a fly-wheel workload for this group.

4. The delegation of planning responsibilities for small jobs to the tradesmen and for medium-sized jobs to the area supervisor. Planners would work only on major jobs. (Planners would also administer maintenance contracts for their areas, thus eliminating the position of refinery maintenance contract administrator.)

5. Flexible working hours.

6. A shift in the role emphasis of the supervisor away from an overseer towards being a boundary manager and a coach for his group.

7. Improved work quality standards, performance feedback, and training systems.

These design elements represented less of a significant change in operations to the specialty services section of the department than they did to field services. In the specialty services group, the tradesmen were already more autonomous by virtue of their expertise and style of supervision. The fact that the second-level supervisor on the task force was from that area, however, led to some resentment by others of the emergence of something of a specialty services model in the preliminary design.

When the preliminary design recommendations were released to the maintenance department, there were mixed reactions, among the tradesmen. On the whole, the tradesmen were very receptive to the design concepts. They had some concerns about all "challenging" work going to the central mobile team, the maintenance of their trade identity, and the relative size of area and central groups. They also wanted elaboration on some recommendations.

The field supervisors, on the other hand, were strongly divided on the concept of small stable area groups and a mobile central team. They wanted their area groups to be stable, but large enough to be able to handle all major repairs and emergencies, as well as routine and preventive maintenance in their areas. They also wanted interruptable construction work in their areas, as a discretionary workload for enlarged work groups. A final concern was the potential loss of control over their work groups, if a flex-time concept was introduced.

The supervisory personnel's concerns were shared, in part, by some of the tradesmen. Figure III shows a cartoon prepared by one of the tradesmen reflecting his view of the changing supervisory role. The names of two of the more hard-nosed supervisors were written in the flashes on the clown's chest. No doubt, the credibility of a significant role change on their part was suspect.

The task force received feedback on the preliminary design both verbally and in writing, and used it in developing the final redesign recommendations. Other inputs to the final design were some concerns raised by the maintenance superintendent relating to the changing nature of maintenance work in the refinery. The manager had observed certain trends in the mix and complexity of the craft work in refinery maintenance and wanted to reassure himself that the proposed design would respond to the emerging refinery maintenance workload as well as to the current workload. These concerns were considered in the final redesign process, but had the effect of strengthening the preliminary recommendations, rather than really challenging them.

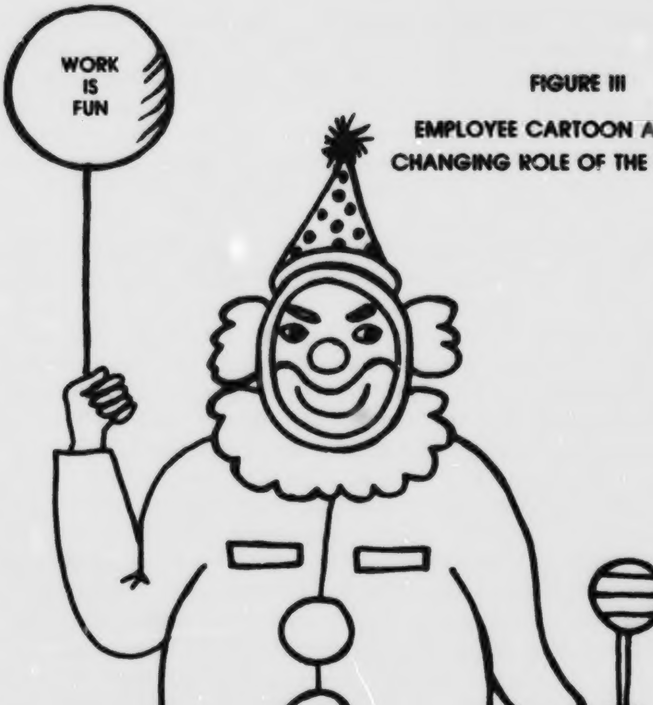


FIGURE III

EMPLOYEE CARTOON ABOUT THE CHANGING ROLE OF THE SUPERVISOR

"YOUR NEW TYPE SUPERVISOR UNDER THE SOCIAL-TECH STUDY RECOMMENDATIONS"

The final design recommendations differed from the preliminary design concepts principally in the degree of elaboration (where demanded) and by a priorizing of implementation steps. The task force recognized the dilemma with respect to the concept of small stable area groups complemented by a mobile central group, but still felt that it represented the best strategy for jointly optimizing the social and technical systems of the work. No fundamental changes were made to the design concepts as a result of the feedback on the preliminary design.

The Implementation Process

At the time the final design recommendations were being prepared, a significant change occurred in the management of the maintenance department. The incum bent superintendent was promoted to a management position in a project group associated with a refinery expansion. He was replaced by the second line supervisor previously in charge of the planning section. The new superintendent was faced with the challenge of learning his new job, selecting a replacement for himself and gaining familiarity with the work of the total department. These and other priorities prevented him from giving his full immediate attention to the sociotechnical systems study.

The negative reaction of a small majority of field supervisors to the proposed restructuring dismayed the new superintendent since he recognized his need for their support in his new role. Unwilling to risk the alienation of some of these key people and unfamiliar with the evolutionary nature of sociotechnical design, he decided to give the resolution of this contentious issue a low priority at that time.

It took about a year for the superintendent to develop the kind of relationship with the field supervisors which allowed him to readdress this issue with some comfort. Meanwhile, of course, some of the credibility of management and of the sociotechnical analysis and redesign process was lost among tradesmen and other departments.

Many other recommendations are presently being implemented. The proposed computer system and a revised training system are being implemented, as are many of the less-significant changes proposed. The controversial central maintenance group has been introduced, although it is too early to determine its effectiveness.

Evaluation

The problem of evaluation of the project has been addressed initially from the point of view of economic, performance and social measures.[9] Implementation groups are being formed or considered with terms of reference including the development of measures relevant to those involved in making the redesign operable. Some benchmark data is being collected with regard to economic performance, the control of key variances, and the quality of working life.

The tradesmen and technicians' evaluation of the study, at present, is a little negative. Many feel that the task force's recommendations with regard to more tradesman autonomy (particularly with regard to planning) were good, and are disappointed that they have not seen significant change. As reflected in their cartoon, they see the field supervisors' new role as somewhat unrealistic in the proposed format. Many see the proposed changes in the supervisors' role and the erosion of this political position as contrary to their own long-term interests, since they ultimately aspire to those positions. Some go so far as to call the study a waste of time and effort, and a mistake since it is seen by them as creating unmet expectations for change and destroying some management credibility. Others see the study positively, and describe subtle changes in supervisory behaviour proposed by the task force, but not attributed by the supervisors to the study.

The most adverse supervisory reactions to the study (from the field supervisors) have mellowed a little in the past year. Some of the older field supervisors are now close enough to retirement to anticipate no significant change in the remainder of their working lives. Others have had their vision of the supervisory role broadened by temporary foreign assignments and are now much less resistant to the superintendent's reorganization plans.

If the sincerest form of compliment is imitation, however, most of the maintenance supervisors seem to value the spirit of many of the task force's recommendations. Tradesmen report much greater supervisory sensitivity to their trade-identity needs, more use of project teams on construction work, and less transferring of tradesmen between area groups on a day-to-day basis (all recommendations of the task force). The field supervisors themselves show some reluctance to give the sociotechnical study any credit for positive changes in the maintenance department, but do acknowledge that the study may have reinforced some of their own ideas for change and provided them with an opportunity to implement those ideas.

From a management perspective, the general feeling is that the study was worthwhile. Much hope is being pinned on the maintenance computer system as a tool for improved supervisory control of work, planning and materials. Some disappointment is being expressed at the length of time the implementation of the structural recommendations has taken.

CONCLUSIONS

The success of the application of the sociotechnical systems approach to the analysis and redesign of work, in the present case, seems to be limited. The major factor in the incomplete or delayed implementation of the redesign recommendations seems to have been the resistance of some of the field supervisors to change (and the resultant dilemma management faced).

When questioned on this resistance to change, the supervisors attributed it to motivational difficulties. They said that they would have too much trouble trying to motivate the tradesmen in the proposed small area groups because of inadequate task variety and challenge in routine maintenance and minor repair work. They also suggested that it would be impossible to supervise subgroups from the central mobile maintenance group while executing major repair or emergency work within the areas, unless such work came under the jurisdiction of the field area supervisor.

The field supervisors did not express their resistance to change in political terms. At one point, in fact, they were directly challenged that their real concern with the study group's proposals was a shift in power away from themselves and towards the tradesmen. They strongly denied this suggestion.

On the other hand, none of the changes noticed by the tradesmen and attributed by them to the sociotechnical study have involved a transfer of power, decision making or discretionary action from supervisors to tradesmen. Even the use of a team of maintenance tradesmen on a major construction project, as a type of mobile central pool, has not involved any significant degree of tradesman autonomy. Indeed, the task force recommendations implying greater worker autonomy (tradesmen to plan their own small jobs and to have direct access to work control and materials management systems; the use of semi-autonomous work groups in the mobile central maintenance team; the participation of tradesmen on trade skill accreditation committees; flexible working hours) have not been implemented. This situation seems to confirm Wilson's observation that supervisors resist changes to improve the quality of subordinates' working lives because of perceptions of a "zero-sum" conflict over power or authority.

The different model Wilson suggests as being representative of the sociotechnical systems approach to QWL experiments did not seem to have emerged in this case. A number of possible explanations for this may be offered. Key among these are problems relating to: the selection of task force members; the analysis and redesign of sociopolitical systems; managerial succession during a lengthy change process; and the applicability of radical change processes to existing high-performing systems, and to systems of a service rather than a productive function.

These problems have all been considered or addressed in the past by proponents of sociotechnical systems theory. The combination of them unique to this case, however, has not been previously addressed. This leads to a possible conclusion about the application of sociotechnical systems theory to the analysis and redesign of work. The orthodox sociotechnical systems approach is a very rational process for analysing and redesigning jobs. In its own terminology, it may be regarded as a technical system for transforming data about an existing work situation into recommendations for the redesign of working arrangements.

It might be more useful to regard the sociotechnical systems process as a sociotechnical system itself. Not only is the process a technical system for converting situational data into design recommendations, but it is a sociotechnical system consisting of a group of people using a transformation process within an organizational context. Some attention must be given to the social system of the people involved in the study, not just in terms of how they will reach their goals, but also how they will adapt to changes in their environment or the data, how they will effectively integrate their efforts, and how they will develop their full potential and enjoy a good quality of working life while on the study. This "second-order" perspective on sociotechnical systems analysis and design is needed.

An important element of such a perspective may need to be political. The frustrations with the present case all largely related to power or influence--the balance of influence within the study group; the representativeness of the supervisory personnel on the study group of their constituents; the acceptability of power sharing by supervisors; and the need of a newly appointed superintendent for the support of field supervisors. Unfortunately, the rationality of the orthodox sociotechnical approach is rarely congruent with the nature of people in real organizations, who are sometimes irrational and often political in their behaviour.

Equally central to some of the lessons of the present study is the nature of quality of working life for supervisors. The transition from "doer" to supervisor is difficult for most people, but it is even more so for maintenance tradesmen. Hands-on involvement with the tools of a trade is the nature of craft work. With years of apprenticeship training, the rituals of trade licensing and a pride in one's craft become essential components of tradesmen's self-concept and the quality of their working life. When tradesmen are appointed to supervisory positions (usually on the basis of their competence in their craft), they may compensate for their inability to express their developed self-concept in hands-on work by showing excessive interest in the work of their subordinates.

As high-level technology and a turbulent environment encroach upon the supervisors' work, fragmenting it and threatening much of their psychological security, craft supervisors turn elsewhere for quality in their working life. Supervisors exercise control over the work group through the use of the authority of their position, and the exercise of such power gradually assumes a central place in their job satisfaction.

When confronted with the idea of a role shift from being a powerful overseer to being a boundary manager, craft supervisors feel threatened. As Wilson concluded, the supervisors see the granting of more autonomy to their subordinates as a "zero-sum game" in which they are losing one of the central elements in the quality of their working life. With established supervisors, whose career role sets have been formed over decades of craft foremanship and who are approaching retirement, this transition is an extremely challenging one.

Tradesmen also feel threatened by the potential changes in the supervisory role. For the most part, they have been conditioned to view the supervisory role as the career development opportunity of a lifetime. Removing that step or modifying it beyond recognition is a very significant blow to the long-term ambitions of some tradesmen.

What is needed is not merely participation in the job redesign process, but a major reorientation in thinking about the nature of craft supervisory work. The reintegration of fragmented work must be seen as a step forward in progress towards a desirable scenario for both the supervisor and the craftsman and not merely as a reinvention of the self-employed master-craftsman concept of yesteryear. For such a cultural revolution to take place, there must be enough dissatisfaction with the current roles in craft work, an image of a worthwhile alternative, and some known experience to permit people to realize that something better is possible. The present case describes one experiment in that direction.

The second of Wilson's findings discussed in the Theoretical Foundations section of this paper was that innovation should be undertaken as part of the normal adaptive and developmental processes of the organization. The present case illustrates an application of an internal change strategy that met with limited success. External resources used were a consultant who assisted in training and in the application of principles of organizational design. Thus, Wilson's second finding gains only partial support from this case.

The dilemma represented here is a general one within the field of organizational development. Sociotechnical systems analysis and design are radical processes, inasmuch as they delve into the roots of the social and technical systems of the organization and build new (jointly optimized) systems based on that data and on images of an ideal organization. History has shown that radical change processes (such as revolutions) are normally most effective when: the difference between the actual and desired states is great; the rate of change desired is high; the existing infrastructures are perceived to be incapable of responding effectively to the desired change; there exists an external fulcrum or leverage point for the change; and the environment is turbulent. More evolutionary change processes seem to be more effective when the desired changes are slight, at an acceptable rate of change, well within the capabilities of existing infrastructures, and the environment is relatively static. Evolutionary changes tend to be associated with internal change agents.

This would suggest that the orthodox sociotechnical systems approach to job analysis and design will be more effective in "greenfield" sites (where no established organization exists), or where there is a widely felt need for a step or rapid change. It will be less effective in situations where there is a high degree of satisfaction with the status quo and a great deal of faith in existing adaptive mechanisms. The further the organizational situation differs from the ideal situation for radical change processes, the more flexible the sociotechnical approach needs to be.

In summary, the present case describes the application of a fairly rigid sociotechnical systems approach to work analysis and redesign within the maintenance department of a major Canadian oil refinery. Particular attention was paid to the role and quality of working life of supervisors. The implementation of the study met with limited sucess (contrary to Wilson's suggestions) because of some supervisory resistance to change. An analysis of the case suggests that power is an important dimension of organization analysis and design. A (second-order) sociotechnical systems analysis of the sociotechnical approach itself is suggested as a means of improving the effectiveness of the sociotechnical systems approach.

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A PROGRAM FOR ORGANIZATION AND JOB REDESIGN

by

Don Adams

and

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ABSTRACT

This case describes a joint union-management program to improve job satisfaction and organizational performance.

The program began in a climate of mistrust, inefficiency and low job satisfaction. Typically, the employees expressed their needs in terms of the tangible factors that they could identify--more money and better working conditions. What was discovered, however, was that in addition to these factors were many severe problems related to supervision, training, allocation of responsibility, information feedback, and the organization of the work itself. The focus of the joint program was on understanding how the many problems were related to the total organizational system. Rather than attempting to solve the myriad problems one at a time, the goal was to redesign the total system as a consistent and compatible unit (e.g., layout, work flow, jobs, training, progression, and information feedback and control systems).

INTRODUCTION

Fraser[1] is a large, isolated, northern industrial plant. The population of the town in which it is located is 12 000, with the nearest large centre 650 kilometres away. In the early to mid-1970s jobs were plentiful and skilled labour difficult to obtain. National unemployment figures ranged from 5.3% to 6.9%. It was relatively easy for skilled people to move from job to job.

In 1973, Fraser employed approximately 2 000 hourly-paid people. Turnover had reached 63% and over 1 200 production-related workers were added to the work force each year. With the limited industrial base, this meant a great deal of community instability as people moved in and out. A large number of workers--the high turnover population--did not seem satisfied with the townsite (many complained about the adverse weather conditions and the lack of community facilities) and working conditions. Many senior officials in both the municipality and the company felt the instability had created an almost unmanageable situation.

In October of 1975, against a backdrop of rapidly increasing inflation (the Consumer Price Index on a 1971 base was 142.8), the company and the union were in the midst of negotiating a new contract. Understandably, the work force wanted a hedge against the erosion of real income. Considering recent contracts in the forest industry (the International Woodworkers of America had just settled for 12% and 12% in each of the next two years), double-digit per cent wage increases were expected by the employees. However, on October 14, the federal Anti-Inflation Board wage and price controls were announced, and the maximum allowable increase for this group was slightly over 8%. Frustration levels were high amongst the work force, and agitation for a strike and other job action increased.

This was coupled with the desire of some to have a coordinated strike with the union of a separate plant owned by the same company. The stated aim was to bargain at the same time (June), thereby increasing the power base against the company. This, however, did not occur. A settlement was reached in January of 1976, giving workers approximately 8% in each of the next two years.

For many, dissatisfaction persisted. In June 1976, at the same time the workers were on strike at the other plant, the work force went on an 18-day illegal walk out at Fraser. The plant continued to be operated by salaried personnel. Gradually, about one third of the employees crossed the picket lines to come back to work. The strike finally ended, but many employees came back to work bitter and frustrated. The strike seemingly had no effect, as pay did not improve and the plant did not stop operating as many had predicted it would.

This was the background to a fundamental process of worksite redesign and problem solving. The labour climate could be summarized as one in which there was a large group of people with little commitment to the work situation or the townsite where they lived. The perceived unfairness of high living costs and government intervention finally came to a head when limitations were imposed on their bargaining ability.

This case described a program of job redesign aimed at improving job satisfaction and organizational performance. In order to deal effectively with the organizational problems, the skills and knowledge of both line management and hourly participants were upgraded. The first step was to gain agreement on the purpose of the business, the pressures to which it was subjected, the performance requirements, and the needs and expectations of the work force. With this background, the next steps were to examine and redesign the work flow, layout, training, cost control, responsibilities, maintenance, and so forth.

●

UNDERSTANDING THE NEED FOR CHANGE

The illegal walk out at Fraser began in a large welding shop within the plant where approximately 150 people were employed. This shop produced large rebuilt electrolytic cells with a value added of approximately $75 000 each.

This was not the first time labour turmoil had developed here. In addition to overall dissatisfaction, discrimination against the East Indian workers was prevalent, as was ethnic conflict among other groups.

In the past, the men in the shop had asked for journeyman wages. However, this could not be supported under the job evaluation system. The nature of the work, the working conditions and the mental demands provided no apparent basis for such a change. The failure to gain tradesman status created a "second class citizen" self-image amongst the welders. Reaction to this varied from violence to apathy.

Individual workers were known to pass several weeks without doing even the smallest amount of useful work. Supervision seemed unable to change this situation. Violence, slowdowns and poor quality were common. The workers were unappeased by repeated attempts to increase pay levels through minor adjustments to the progression system. Over the years, both sides had become deeply entrenched.

Just before the strike, the plant reporting structures were reorganized and a number of new managers were appointed. Of particular importance were a new plant manager and a new superintendent and his assistant responsible for the welding area. Rather than listening to plant management's versions of all the problems that had occurred, the new superintendent and his assistant began talking with the employees. In open group meetings, they asked employees about their perception of the problems in the welding shop. The responses of the employees could be summarized by two statements:

"We want more money."
"Clean up the working conditions."

Eventually, it was learned that these generalized complaints were the symptoms of underlying problems.

This process of questioning formed a foundation for improving the level of trust necessary to embark on a process of constructive problem solving. It could easily have been aborted at this stage by telling the employees that they were wrong and did not know what they were talking about. Traditionally, this was what had happened, and it was what many employees expected.

Instead, the new superintendent asked that a joint committee be set up to study the issues. This group consisted of two union stewards, one other hourly shop member, a foreman, the assistant superintendent, the union president and a representative from personnel. Each brought a unique and essential set of skills. The hourly members' knowledge of the operations was critical to any meaningful work flow analysis. Until that date, there had been few work measurement studies and virtually no worthwhile documentation of scheduling requirements, standard times, methods, etc. In addition, the workers could provide some understanding of the needs and expectations of the work force. The union president had some knowledge of the overall benefits and hazards that could arise from new proposals. The foreman's knowledge of the work complemented that of the hourly-paid members. He also had some knowledge of the overall operational needs and problems of the organization. The assistant superintendent represented the needs of the company, and the resource commitment that could be expected. Finally, the personnel representative acted as the catalyst to ensure the group was trained and that any strategy for change could be effectively implemented.

On the surface, the issues seemed simple--money and working conditions. It quickly became apparent, however, that these were only symptomatic of the real problems. Management was caught in a difficult position. The employees wanted increased wages. But under current conditions this could only occur through one of two ways--either by purposely distorting the job evaluation system or by substantively changing the apparent constraints of the work and employee responsibilities.

It was decided that the non-management representatives on the joint group should conduct their own survey of shop problems. This might provide a better basis for understanding the problems and give the group something more concrete to consider. In addition, without management present the employees might feel more at ease to talk openly.

At a series of open meetings, they gathered lists of concerns held by welding shop employees. These results were categorized along the lines of Herzberg's dissatisfiers and satisfiers.[2] It was found that the dissatisfiers were not enough money, poor supervision and eight other items related to poor working conditions (no hot running water in the washrooms, dirty lunch rooms, etc.).

The list of desired satisfiers was even longer. A total of 17 items related to poor job content (e.g., "I don't work with the same people from day to day", "I am not trained to perform all the operations"). These revelations proved to be the key to opening up everyone's understanding of the real problems.

No longer was this a simple problem that could be solved with some minor adjustments, such as giving people more money or solving each problem one by one. The pay situation now seemed symptomatic of problems with the basic system. Such problems included: a lack of identification with the work, the absence of pride in what they were doing, and many other factors. Improved working conditions, on the other hand, might not lead to long-term satisfaction. People would only be less dissatisfied. The solution to all of these problems seemed to hinge on an examination of the total organizational system (training, progression, information feedback, supervision, layout, equipment, costs, working conditions, etc.), and redesigning it as an integrated unit. It was also acknowledged that the process of redesign would require an exceptional amount of work and considerable individual development for each participant. For example, all persons would need to understand the priorities and issues of concern to the employees, the pressures of the business, what elements constitute good work design, layout, work flow analysis, etc.

The survey helped focus the need for change. The traditional gulf between labour and management, characterized by win-lose confrontations, began to be bridged by working together on issues of common interest and concern. A basic trust and mutual respect began to develop. Gradually, it was recognized that the "way we have always done things" mentality had to be questioned. Although they may once have been appropriate, some historical practices were seen to be impeding the path to progress.

PROGRAM FOR CHANGE

Having developed a list of issues, the problem-solving group informed senior management, the union, and the employees that a mandate for change was necessary.

> The objective of the task force is to create good jobs for the people ... and at the same time a satisfactory improvement in productivity.[3]

Good jobs, as defined by the shop employees, involved:

- a desirable future (e.g., promotion, pay, status)
- opportunities to make decisions
- regular feedback on job performance
- social support from fellow employees
- work that could be related to the objectives of the organization.

The mandate needed the support of the employees, the union, and the management. The employees and the union were key to the implementation of any proposed changes. Senior management support was necessary in order to assign the time, money and assistance to carry out the task.

The management representatives on the task force were very concerned that senior management might give only selective and partial acceptance to their recommendations. They felt that such a complex project would function in an unpredictable fashion if the organizational system design were arbitrarily altered by management. Participation by hourly-paid members could be perceived as tokenism where participation was allowed only if management liked the recommendations. Guaranteeing full participation at the outset was a difficult decision for management. To place total confidence in this group bordered on abdication of management's responsibility. However, rejection would obviously have provoked a very unpleasant reaction amongst the employees.

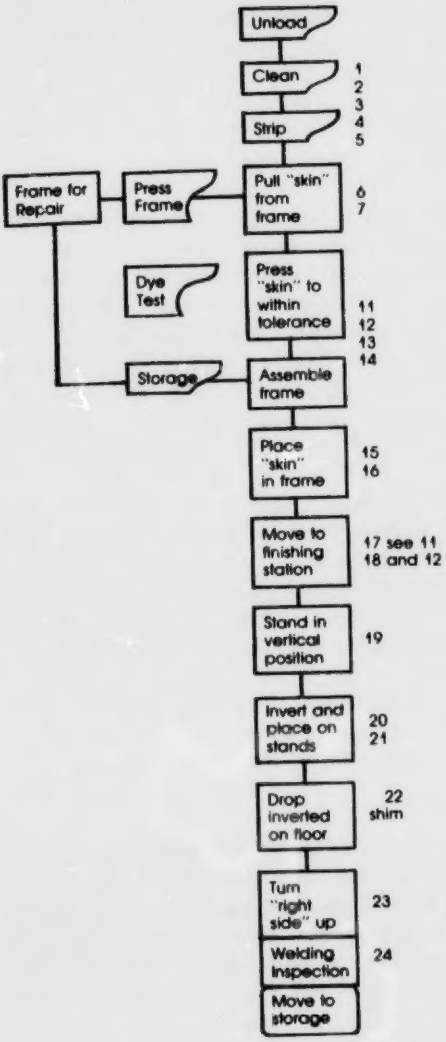
After considerable discussion, it was agreed that the recommendations would either be adopted in total or rejected. Thus, senior management took the initial major risk. They reasoned that if they assigned competent people to the project, the company's interests would be adequately represented and protected. This gratifying demonstration of confidence and support was recognized by the workers. Management did in fact completely uphold this part of its contract.

The task force members began their redesign with a developmental program for themselves. They started by analysing the trends and pressures - economic, social, political and technological - that would shape the future of both the employees and the company. Like the survey of employee concerns, this analysis added to everybody's understanding of the working group's design criteria, while serving as a basis for assessing the many traditional ways of operating. The members began to realize that some historical practices might have to be altered or discarded.

The group was then exposed to a variety of readings and exercises concerning employee participation and job satisfaction.[4] They discussed their own values and expectations of work, as well as those of their fellow employees. They examined some of the basic theories of organization and job design and, finally, developed an understanding of the basic skills necessary for socio-technical analysis. The initial work flow for one of a number of products is shown in Table I.

TABLE I

WORKFLOW FOR PRODUCT A


Unload
Clean
Strip
Pull "skin" from frame
Press "skin" to within tolerance
Assemble frame
Place "skin" in frame
Move to finishing station
Stand in vertical position
Invert and place on stands
Drop inverted on floor
Turn "right side" up
Welding Inspection
Move to storage
Frame for Repair
Press Frame
Dye Test
Storage
1
2
3
4
5
6
7
11
12
13
14
15
16
17 see 11
18 and 12
19
20
21
22
shim
23
24

1) Invert and cut welds on floor.

2) Turn right side up and block up.

3) Remove cover place.

4) Drop frame.

5) Measure; decision as to repair or scrap.

6) Remove angle iron and carbon arc to clean.

7) If 5) was to scrap, cut ends off.

8) If broken, press and send for repair.

9) Press frame, leave it for dye test.

10) Press frame, gauge it, if necessary send for repair.

11) Assemble frame on floor.

12) Or assemble frame in jig.

13) Align, clean, and measure frame.

14) Reinforcing on end frame.

15) Centre in frame.

16) Set frame, cut, press into cradles and tack.

17) Only if in jig (see 11 and 12).

18) Attach angle iron and coverplate.

19) Weld side angle to sides.

20) Press floor.

21) Do required welding.

22) Shim and check for warpage.

23) Strips, shims, floor patching. Check reinforcing, weld numbers.

24) Make corrections as required.

There was a need for teamwork between the floor crew and the crane operator. At this point, however, there were few mechanisms in place to permit teamwork. Also, two operations, cleaning and inspection, were performed by outsiders. As will be seen, these tasks were eventually integrated into the work of the crew. A similar situation existed with other products.

One of the primary reasons for rework and excessive costs was the inferior workmanship during the cleaning operation. The more highly skilled people had frequently refused to do this job, saying it was "not fitting work" for a tradesman, so management had conceded by introducing specialists to carry out the work. These specialist cleaners did not have to live with the quality of their output. Only during the assembly process did the results of their shoddy workmanship begin to appear. This often necessitated costly and frustrating rework. In redesigning the work process, the task force recognized that the person doing the cleaning must also be involved in the subsequent operations. Only then would the variance be controlled.

The more highly skilled workers seemed the appropriate ones to carry out the cleaning task since they had the skills to provide a variety of tasks from cleaning to welding. Hourly-paid members of the task force resisted this at first. Given the history of conflict on this very issue, they could hardly be expected to turn around and support it now. Eventually, agreement was reached and this feature was build into the design. However, management had to take the lead in gaining both understanding and acceptance of the principles involved.

The analysis revealed other problems:

1. The crews, consisting of two or four members, changed daily. As a result, there was little or no work group camaraderie, sense of teamwork or feeling of responsibility for turning out a good product.

2. No one worked on the same product continuously from beginning to end. This resulted in an absence of accountability, and low identification with product quality and performance.

3. Specialists were brought in to perform some highly skilled tasks since it was assumed that the welders were incapable of performing these more sophisticated welding jobs.

4. There were three levels of product inspection to check on the work of the workers. As a result, there was a tendency to leave the responsibility for quality to someone else rather than to make it right the first time.

5. Product knowledge training was spotty at best. Only supervisors and inspectors possessed the required knowledge of the many product variations. If a worker wanted to know how to do a job, he was dependent on a more knowledgeable superior for the answer.

The task force recommended that the work and job structures be redesigned to require sufficient product knowledge and skill within the crew to encourage more crew control of the work flow from beginning to end. An intensive performance-based training and progression structure was recommended. With this broader knowledge and skill requirement, plus some additional responsibilities, jobs were increased in scope to include all technical requirements. This included training of junior employees by the fully competent senior members, rotation through all jobs, and product inspection. At the same time, recommendations were made for changes to layout, equipment and working conditions. The traditional basis for payment (i.e., payment for what a person is doing) was broadened to include payment for what a person was capable of doing and would be required to do through the rotational scheme.

Briefly, the characteristics of the new organizational structure and related recommendations were as follows:

1. Crew members were to remain together.

2. In coordination with an afternoon crew, a crew would follow the product from beginning to end.

3. The crews were to be trained to perform all specialist jobs including product inspection and the training of new employees.

4. Detailed product knowledge was to be made a requirement for promotion.

5. The crew was to inspect the product with an internal "customer" who would work to the same specifications.

6. There was a 30-month progression/promotion plan.

7. People would be encouraged to progress to the highest possible level.

8. People could opt out of the promotion system, provided they had attained a basic level of skill, i.e., they could perform all of the manual work.

9. Promotions would be based on objective performance criteria and length of service.

10. People would be paid for knowledge and value to the organization based on the skills they had learned and applied.

11. Crews would rotate through all jobs on a regular basis (including the cleaning operation and other unfavourable jobs).

12. Miscellaneous equipment changes were to be made.

13. Layout improvements were proposed.

14. Working condition improvements were recommended.

Table II shows the transition from the old to the new structure. Under the new arrangement, with the additional training, many jobs that formerly had been performed by specialists or not done at all were now absorbed by the crews. As a result, room for personal growth in knowledge and skill was substantially increased. Table III illustrates the training, experience and formal testing procedures necessary in order to progress under the new structure. The content of each of these training modules is described briefly in Table IV.

TABLE II

TRANSITION FROM OLD TO NEW ORGANIZATION

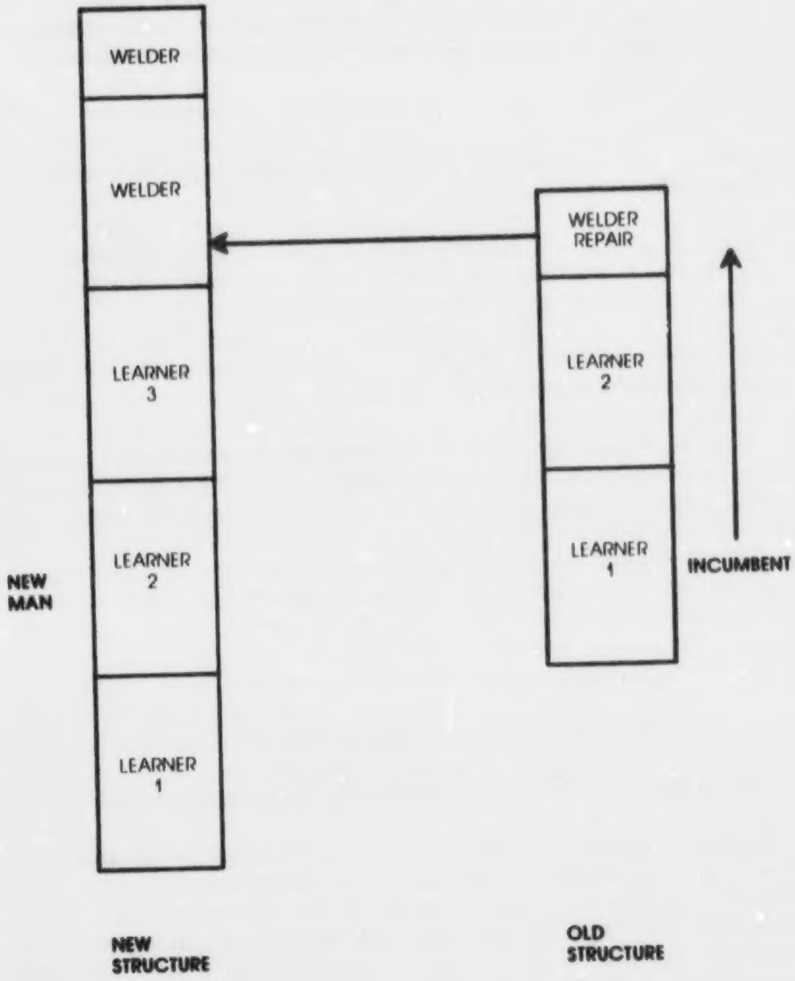
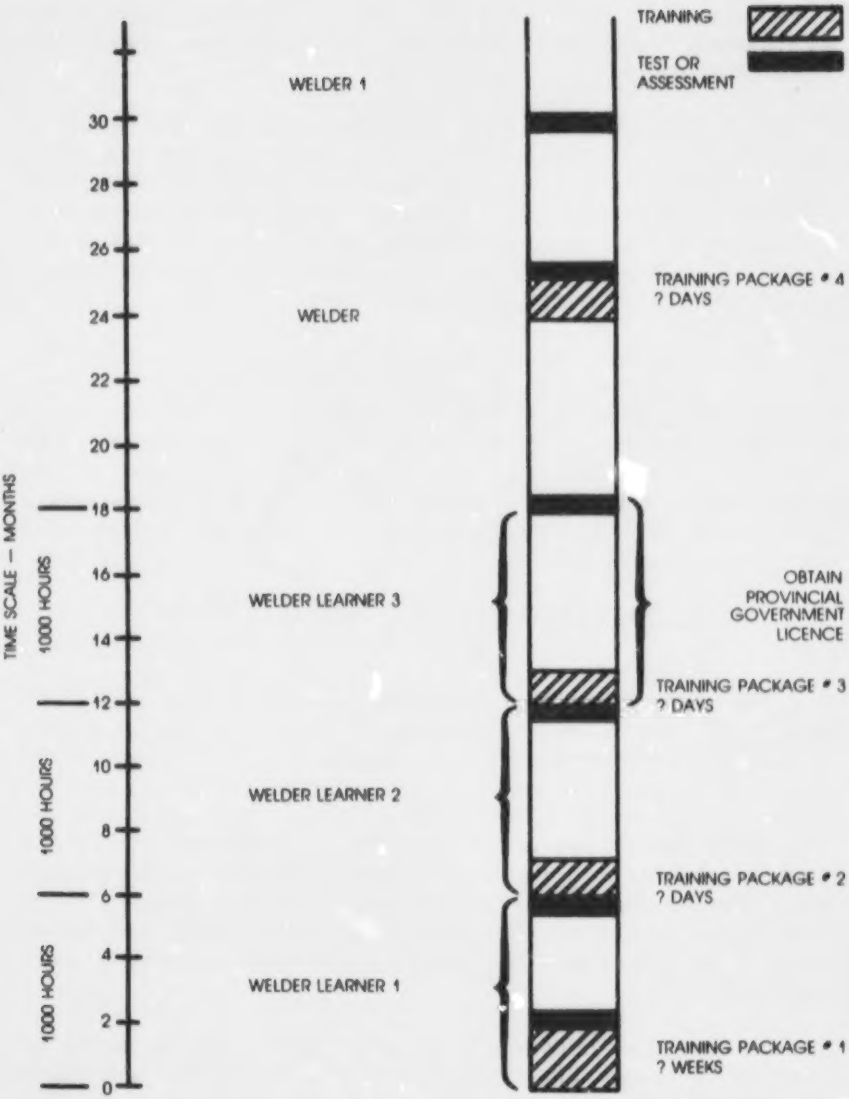

WELDER
WELDER
LEARNER 3
LEARNER 2
LEARNER 1
NEW MAN
WELDER REPAIR
LEARNER 2
LEARNER 1
INCUMBENT
NEW STRUCTURE
OLD STRUCTURE

TABLE III

TRAINING ORGANIZATION


TRAINING
TEST OR ASSESSMENT
TIME SCALE — MONTHS
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
1000 HOURS
1000 HOURS
1000 HOURS
WELDER 1
WELDER
WELDER LEARNER 3
WELDER LEARNER 2
WELDER LEARNER 1
TRAINING PACKAGE # 4
? DAYS
OBTAIN
PROVINCIAL
GOVERNMENT
LICENCE
TRAINING PACKAGE # 3
? DAYS
TRAINING PACKAGE # 2
? DAYS
TRAINING PACKAGE # 1
? WEEKS

Once documented, the new jobs were reviewed under a job evaluation plan which suggested that workers would be paid for both knowledge and skill whether or not they were using it on a specific job. The traditional job evaluation assessed workers on separate jobs they performed daily.

Originally, money was the key issue in the minds of the employees. Throughout, the design group had been aware that more money could be made available if it could be tied to increased job content, upgraded qualifications and expanded knowledge requirements. The results of the evaluation were affirmative--all workers, if they qualified, would receive an extra $0.68 per hour.

In conclusion, the program for change and redesign did not follow a logical step-by-step textbook method. Rather, it employed a flexible process that moved toward the dual objectives of increased employee satisfaction and improved productivity. As a result, an explosive and disagreeable situation evolved into one where there was a high level of joint problem solving between labour and management.

IMPLEMENTING THE RECOMMENDATIONS

The task force had finished its initial work, and the next task was to gain management approval and support. One of the serious gaps in any presentation to management was the absence of work measurement and cost information. As a result, accurate quantitative projections of the expected results were not possible. However, given the major problems and daily disruptions of the past, coupled with the obvious total commitment and enthusiasm of all task force members, the climate for acceptance was good. After a series of presentations, the recommendations were approved.

It was also necessary to gain the acceptance of the shop employees. The recommendations contained a number of advantages but also had some disadvantages for the employees (e.g., rotation through the cleaning operation). To select only the good things would completely erode any semblance of a systems design. The product of

TABLE IV

TRAINING PACKAGES

	WHEN
PACKAGE # 1	AT BEGINNING
- WELDING THEORY AND PRACTICAL	
- SHOP INTRODUCTION	
- RIGGING AND SLINGING	
- SAFETY	
PACKAGE # 2	BETWEEN 6-12 MONTHS
- REVIEW WELDING PRACTICAL AND THEORY	
- CRANE SIGNALS	
- PENDANT CRANE OPERATION	
- PROCEDURES AND STANDARD PRACTICES	
PACKAGE # 3	BETWEEN 12-18 MONTHS
- BASIC BLUEPRINT READING AND LAYOUT	
- PROCEDURE AND STANDARD PRACTICES	
- PROVINCIAL GOVERNMENT LICENCES	
PACKAGE # 4	BETWEEN 24-30 MONTHS
- HOW TO GIVE ON-THE-JOB TRAINING	
- INSPECTION METHODS	
- CHECKING FOR COMPLETION	
- HILTI TRAINING	
- DYE TESTING, RECORDING FRAME REPAIRS	
- DEGREE OF WELD CHECKING	

such an approach would be a patchwork organization whose effectiveness would be seriously impaired. Thus, it was decided to implement the program on an "all or nothing" basis, as it had been with management. Meetings were scheduled with forty to fifty employees at a time. As expected, there was clear support for the possibility of increased wages, but there was a strong negative reaction to other recommendations such as the cleaning job. Material outlining the package was handed out to each employee, and questionnaires were filled out at the end of each session to determine the level of comprehension and acceptance.

Acceptance of the proposals for change required amendments to the collective agreement. In turn, these had to be ratified by the total membership of 2 000 employees. However, only those interested (namely the welding shop employees), showed up for the meeting. The vote was taken and the amendments were ratified.

One fact emerge: Given the long history of antagonism and conflict, the existing supervisors had little chance of achieving effective collaboration with their employees. As a result, some members of the supervisory group left or transferred and were replaced with a seasoned general foreman and a newly selected foreman group. They set about to establish a firm, fair, and consistent atmosphere in the shop. A small group of employees who preferred the former system with its absenteeism, unsafe work practices, harassment and job action took exception to this. A number of these people left voluntarily, some were disciplined and, of those, a few were terminated.

The new supervisory group also initiated more orderly support in other areas. They demonstrated that they were prepared to play an appropriate and positive role in the new structure by improving tool control, planning work, and providing greater supervisory support and control. This change in approach soon had a significant effect on both the employees and the level of productivity.

To ensure continuity from design to implementation, the senior line manager of the task force was given responsibility for this phase of the project. Initially, people had to be slotted into jobs without any training.

Over the first eight months, the foreman and one of the hourly-paid members from the design task force worked full-time in completing technical slide/sound training programs. Permanent crews were formed and, as quickly as possible, the other recommendations were implemented.

In order to proceed up the progression ladder, an individual had to learn how to train others, and use this skill to help others progress. The rewards for this were both the tangible one of more money and the intangible effects of increased status and a higher degree of competence. Standardized tests were introduced to verify that skills had been learned, and as a check on the quality of training performed by those hourly-paid employees with instructional responsibilities.

A number of changes were introduced in the quality control area as well. Historically, product quality performance had been very low, in spite of a great deal of product inspection. It was not unusual to have a four-man crew performing 30 hours of rework on a single unit which originally required 400 man hours to build. One method for improving this was to present the work group with photographic evidence of a job well done or poorly done. A program of qualitative performance feedback was undertaken. This had a dramatic effect on rework frequency.

Each crew became responsible for its own quality and inspected the product with the "customer's" inspector who was trained in working to the same specifications. Among the more highly trained welders, a spirit of "bring on the inspector" eventually developed, testimony to the fact that their work was being done properly.

In the second year, the development of work measurement data and a unit costing system made it possible to provide an accurate objective measure of performance. To develop the work measurement data base, three hourly-paid workers were selected by means of a battery of tests and interviews and trained by the industrial engineering department. For the next five months, these new work study analysts proceeded, under professional direction, to analyse methods and work flow. Their findings were summarized and presented to shop supervision. The three welders were proud of their authoritative and detailed evidence that indicated the shop had twice the number of people required. In addition, their findings suggested that the adoption of new work methods could further improve efficiency.

Until now, project results had been assessed primarily by casual observation of quality, quantity and shop atmosphere improvements. These had been encouraging. Anecdotal accounts of the diminishing hostility level abounded during the first two years of the project. However, with the strong quantitative base provided by the hourly work study analysts and the unit costing system, more objective measures became available.

At about the same time, a social club appeared. Attendance at departmental social events went up. A chess club was started in the welding shop and later expanded to a plant-wide league. The most elaborate children's Christmas party in the plant was--and still is--sponsored by this shop. Other signs of improved social integration included an Open House day during which family, friends, and other members of the community were invited to tour the workplace. Attendance at these events was very high.

The opportunity to discuss their productivity with various crews allowed and encouraged individuals to keep personal records of achievement. Some are still claiming best times for individual jobs. It became possible to interrupt jobs between shifts of a two-shift operation so only one crew and sometimes one individual could have a shot at breaking output records. To do this, the crews would organize their work patterns to suit their own make-up. The requirement for shift-to-shift coordination diminished as more space became available due to reduced numbers. Thus, it became increasingly possible for crews to keep all aspects of a particular job within their shift. Foremen did not have to schedule matched sets of crews to continue a job after shift changes. This occurred just in time because conflict over job ownership and criticism of the other shift crews had emerged as personal commitment to performance excellence increased.

By the end of the second year, labour turnover had decreased to the point that no hiring was necessary. Increased productivity, mostly from the reduction in rework, made up for the diminishing work force. Earlier, it had been promised that no one would lose his job because of increases in efficiency. It became necessary to take on more work as productivity improved and the rate of attrition decreased from a high of 30% in the first year. Fortunately, a number of welding jobs, which had been contracted out, could be repatriated to keep the shop busy. Historically, outside shops had demonstrated that they could perform the work much more economically. This was one of the innumerable indicators in the organization that had subtly said company welders were not capable of performing adequately. The repatriation of a series of small to medium-sized jobs kept the level of output nearly constant, while the total manpower drifted slowly downward as people were promoted or left. Some of the new work required more skill and involved the construction of complete small units. This provided an opportunity to assign more rewarding tasks to higher performers.

Further, with virtually no new people coming into the shop, the need for training had almost vanished. Most of the original employees had moved up the progression ladder. As a result, the training skills developed by the senior hourly-paid employees responsible for instruction began to deteriorate.

Before mid-year, there was an opportunity to make a competitive bid for fifteen new production units. Previously, these would have been contracted to outside firms, due to skill deficiencies, poor quality, an apparent lack of capacity and higher costs of the on-site facility. Now, however, the welding shop's bid was successful. This reversal of the message of implied inferiority was well received.

By late in the third year, the contract for new units was successfully completed. In addition, a cost analysis had revealed that the in-house repair of older intermediate size components was now more economic than the former practice of purchasing new ones outside. This was welcome news, for by then the major preoccupation of the shop supervision was to find even more work for the shop. At the same time, the work force size was still diminishing, chiefly through upgrading into higher-paid jobs as fully qualified welders in other parts of the plant. Thus, while the shop dealt with the normal repair/rebuild demand for which it had been set up, as well as taking on additional new work, the work force was reduced through attrition, over the four years, from 156 to 85 employees.

The value the of objective cost analysis took on even more significance. It enabled the shop to secure more work in the competitive bidding market, and assisted in identifying any lingering areas of inefficiency. In order to make the system more effective, an overhaul of the cost system was commissioned. Once implemented, it enabled more systematic quantitatve feedback of actual results to each four-man work team. The result was even greater productivity. In retrospect, it is clear that this step could have been taken much earlier.

The management accountant assigned to this subproject was able to generate unprecedented support among the foremen, who learned the value of quantitative feedback. They had become more confident in their management capability, so their acceptance of more sophisticated tools grew. It is evident that both a receptive management environment and an accounting approach geared to meeting the needs of shop floor management is essential.

By the fourth year, both new skills and new equipment had enabled the work crews to progress to the more sophisticated materials and techniques common to the outside shops (ductile iron, stainless steel, submerged arc and mig welding). At the time this article is being written, 50 major units incorporating these techniques have been built in the shop at costs below those of the same outside shops which once had been considered better and more productive places to work.

In the five years since the program was instituted, the results have been dramatic: greater professionalism among both management and employees, improved work satisfaction and sustained superior organization performance. Labour input has decreased by 45%; quality has improved significantly; unit costs have dropped; and the destructive relationships between management and employees, and among the employees themselves, have improved. There is now a widespread sense that everyone is on the same team, they are working towards compatible goals, and they are responsible for the resultant performance.

GUIDING PRINCIPLES FOR SYSTEMS DESIGN AND CHANGE USED IN THIS CASE

Since the approach used for organization design was complex and difficult, it was tempting to ignore this total system and concentrate on only one of its parts. Before the development work described in this case, the general approach might be described as a managerial approach (see Table V). It highlighted the managers' ability to define external demands (by customers, regulatory bodies, special interest groups, financial pressures, technological change, etc.). The managers' knowledge was important in assuring the organization's efficiency and in meeting the expectations and needs of the members of the organization. There were numerous choices as to the type of organization (e.g., functional, profit centre, matrix, task force, or project). Within these, activities were grouped into work units. In turn, the organization was divided into levels and decisions made regarding the degree of centralization/decentralization.

It was also necessary to design an operation to ensure that the production (efficiency) objectives would be met. Such a worker-initiated design, as described in the case of the welding shop, must relate directly to the objectives of the broader system. It would then be easier to integrate (1) necessary work (both quantity and quality), and (2) the needs and expectations of the workforce (see Table VI).

This worker-initiated design demanded a thorough analysis of the work flow. In service industries, this analysis would likely focus on the information flow; in production situations it would seek to understand the product itself. The analysis required identification of

TABLE V

OUTLINE OF TRADITIONAL MANAGERIAL PROCESS FOR ORGANIZATION DESIGN

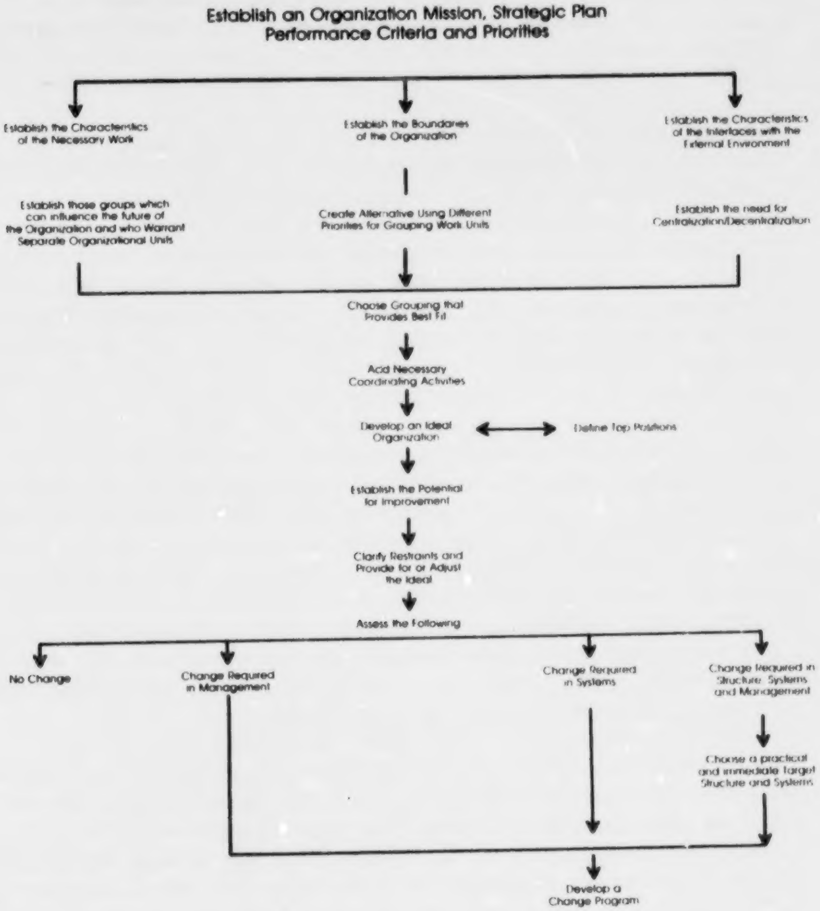
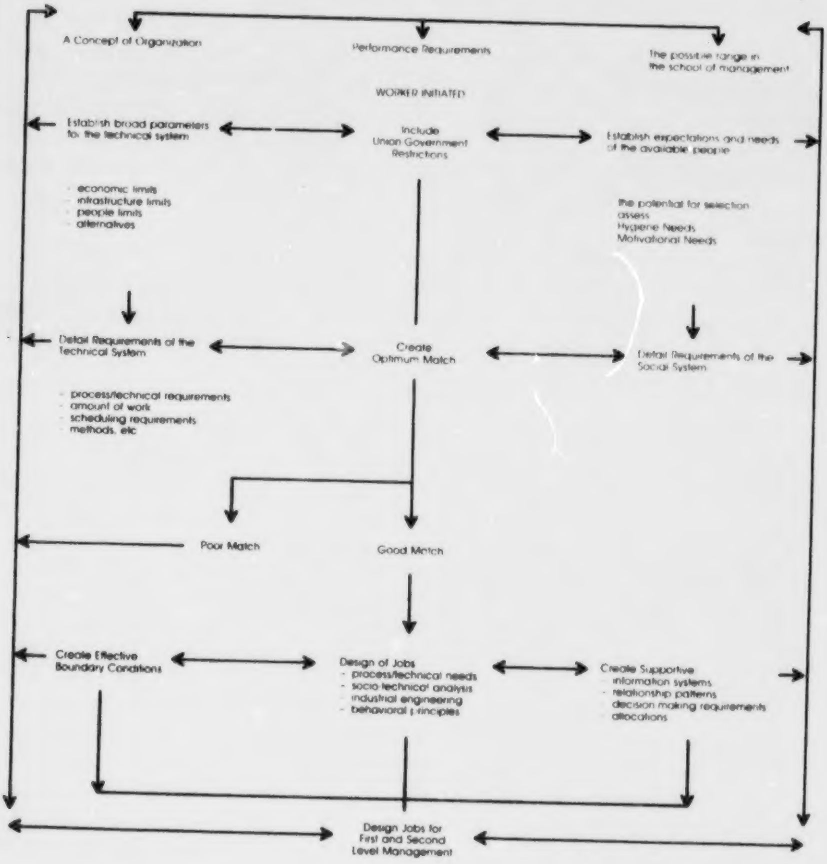

Establish an Organization Mission, Strategic Plan
Performance Criteria and Priorities
Establish the Characteristics of the Necessary Work
Establish the Boundaries of the Organization
Establish the Characteristics of the Interfaces with the External Environment
Establish those groups which can influence the future of the Organization and who Warrant Separate Organizational Units
Create Alternative Using Different Priorities for Grouping Work Units
Establish the need for Centralization/Decentralization
Choose Grouping that Provides Best Fit
Add Necessary Coordinating Activities
Develop an Ideal Organization
Define Top Positions
Establish the Potential for Improvement
Clarify Restraints and Provide for or Adjust the Ideal
Assess the Following
No Change
Change Required in Management
Change Required in Systems
Change Required in Structure, Systems and Management
Choose a practical and immediate Target Structure and Systems
Develop a Change Program

TABLE VI

FLOW CHART FOR A WORKER INITIATED PROCESS OF ORGANIZING

Based on the External Environment, the Top Down Process
Has Established


A Concept of Organization
Performance Requirements
The possible range in the school of management
WORKER INITIATED
Establish broad parameters for the technical system
Include Union Government Restrictions
Establish expectations and needs of the available people
- economic limits
- infrastructure limits
- people limits
- alternatives
the potential for selection
assess
Hygiene Needs
Motivational Needs
Detail Requirements of the Technical System
Create Optimum Match
Detail Requirements of the Social System
- process/technical requirements
- amount of work
- scheduling requirements
- methods, etc
Poor Match
Good Match
Create Effective Boundary Conditions
Design of Jobs
- process/technical needs
- socio technical analysis
- industrial engineering
- behavioral principles
Create Supportive
- information systems
- relationship patterns
- decision making requirements
- allocations
Design Jobs for First and Second Level Management

those factors affecting the quality, quantity, or cost of the product. In this case, 200 to 250 factors were compared to determine the significant factors that had to be controlled if the product was to be produced economically with minimum operator frustration. Approximately 15 factors seemed significant in this case.

The needs of employees (including supervision and management) were an important part of the analysis. The advantages of involving both workers and managers in design became obvious as their needs and values were built into the process. The worker-initiated process was intended to give the worker, or work group, control over those factors that could significantly influence the quality, quantity, or cost of the product. Often, this involved broadening jobs, upgrading knowledge, improving information feedback, improving training, and so forth. Support system design and needs were also taken into account.

It was essential to keep asking the question, How would we design the organization if there were no already established practices? The resulting "practical ideal" was then compared with what existed. At that point, adjustments were made taking into account both the organization's need for efficiency and the needs of the work force. The alternative was to concentrate at each design stage on the constraints and frustrations of existing practices. Inevitably, this would result in an unbalanced, piecemeal design.

CONCLUSIONS

What have we learned?

First, leadership emerged as the most important ingredient in making the change. In this case, no one person had any idea what the end product would be or if, in fact, there would be any improvements. At times the union did not have any concrete results to share with its constituents. Under these conditions there was minimal support for its efforts, and its position was a lonely and tenuous one.

Consequently, the need for management consistency, enthusiasm, and commitment was paramount. Without it, the effort would surely have failed. More specifically, there was no substitute for credible and effective shop floor management. The key to the implementation process was the respect of employees for the efforts of supervision and management.

Second, the cooperation between hourly-paid, union, management, and specialist participants in the preparations for changing many aspects of the system proved to be an invaluable source of strength and creativity. Rather than concentrating on the problem of "more money", they completely overhauled the progression system, training programs, work measurement data, accounting systems, quality control systems, supervisory, specialist and support system responsibilities, and layout. Further, innumerable unplanned side effects had to be managed. Due to the complexity of the system, the changes were very demanding, costly, and time consuming. In this case there was an "up-front" commitment to both design and implementation. The resources were of high quality and were devoted full-time to the task.

Third, climate for change was another important aspect. For such a broad change to occur, it was evident that people must have recognized that it was needed. Old habits and attitudes were not changed easily; individuals wanted to see the advantages of any new behaviour. Economic pressures, new technology, or even a change in leadership could have been major factors affecting the climate. In this case, the overriding pressure for improved satisfaction and performance surfaced as a necessary ingredient for productive conflict resolution and problem solving.

Fourth, at certain stages of development the use of an outside consultant proved to be a prerequisite to making change. In addition to contributing additional time and talent, this person also provided an objective viewpoint in win/lose conflict areas, and enabled the participants to seek more integrative solutions. He assisted by encouraging participants and obtaining support and understanding at different levels in the organization.

In conclusion, this case suggests that there are indeed possibilities for improving human and organizational performance. One might question whether many decisions to install new technology are really an avoidance of the fact that we are not doing nearly as well as we could with the technical and human resources we have.

REFERENCES

[1] Fraser is not the real name of the plant. The events are real.

[2] Frederick Herzberg. *Work and the Nature of Man*. New York, Thomas Crowell Co. 1966.

[3] At that time, due to an almost total absence of reliable performance information, "a statisfactory improvement in productivity" was undefined.

[4] Many of the readings used can now be found in Louis E. Davis and James C. Taylor (eds.) *Design of Jobs*. London, Penguin Books, 1972; and Frederick Herzberg. *Work and the Nature of Man*. op. cit.

[5] Objections by the hourly-paid task force representatives stemmed from their perception of the difficulty (impossibility) of selling this to their fellow employees rather than with the practicality of the solution.

MEASURING THE EFFECT OF AN ORGANIZATIONAL INTERVENTION

by

Albert Alon

and

Don de Guerre

ABSTRACT

This paper describes the collaboration of store employees and managers of four Miracle Food Mart supermarkets in Ontario in the joint evaluation of a project aimed at improving the quality of working life. The research project was conceived by the author-managers as a change strategy to:

1. facilitate organizational learning that could contribute to improving the pilot quality of working life project;
2. empower participants in the quality of working life project to take charge of defining and shaping their own experience with it; and
3. enhance the long-range effectiveness of the organization and the personal growth of its employees.

After a brief description of the project's background, the paper describes the formative stages of the project, its organizational context, the values and assumptions upon which it was based, and its outcomes.

INTRODUCTION

"Everything nailed down is coming loose", a historian once said[1] -- a poignant and accurate description of the speed and force of change in society around us.

Large organizations like Steinberg, a major commercial retailing operation, are increasingly becoming the target of demands from different segments of society, such as governments, consumers, students, affirmative action groups, and minority groups. As one example of these environmental demands on the internal operations of organizations, young people today come to the workplace with changed values concerning the individual and satisfaction of personal and social needs.

At Steinberg, we needed to relate to those views that reflect young people's insistence, if not their right, that they be masters of their own fate in the workplace, and not be controlled by authoritarian bosses breathing down their necks. The crucial question was: Could we attune our organization to the growing problems and costs of absenteeism, high turnover, poor workmanship, low productivity, and employee apathy currently pervading the workplace? A Yes answer would indicate our capability as an organization to develop new responses to employees' demands and to implement a series of change strategies to maintain our business today and ensure our growth in the marketplace tomorrow.

SENIOR MANAGEMENT DIALOGUE

In the fall of 1976, on the initiative of the Chairman of the Board, the late Mr. Sam Steinberg, a series of crucial meetings were held at corporate headquarters in Montreal, Quebec, to examine strategies business for the future. A small group of corporate executive officers and senior management representatives from the various divisions of the Steinberg Corporation were involved. An external consultant led the participants through a search process that considered different options appropriate for managing our business in the eighties and nineties.

The discussions were intense; the points of view were exciting and diverse, as represented in the following questions which were considered:

> What are the implications for the corporation of initiating a quality of working life thrust?
>
> Is the corporation considering QWL from a defensive posture for improving the business or from a proactive stance in order to ensure organizational success in the following decades?
>
> How will we deal with the resistance to change by managers steeped in old ways of doing things?
>
> In the mid-seventies, the Steinberg Corporation was riding the crest of continued financial success and growth. We were coming from a position of strength, so why begin to tamper now with new concepts and new forms of work organization geared to shifting power and decision making down into the rest of the organization?
>
> Would current managers throughout the organization let go of the power they had held and for which they had been rewarded over the years?
>
> How would our union respond to change? Would it cooperate with us as an equal partner in the introduction of QWL into our organization?

After a number of meetings dealing with some of these issues and questions, a breakthrough came when the vice-president and general manager of the Ontario Food Division, Miracle Food Mart, anounced that the senior management group of Ontario was prepared to embark on a QWL project initiative.

LAUNCHING THE QWL PILOT THRUST

For approximately ten months previous to the launch of the pilot test, senior managers of the Ontario Division (as had their counterparts at the corporate level) discussed, argued, and raised issues and concerns about adopting such a policy. By no stretch of the imagination could it be said that there was a wholehearted and unanimous "buying in" to the concept of QWL. Some of the core questions raised during this exploratory period were:

> What are the benefits/liabilities of going or not going with QWL?
>
> Can it work in our kind of business?
>
> Will it drain energy and resources currently required to achieve our business objectives in a highly competitive supermarket environment?

As these dramatic exchanges went on, we continued to seek opportunities to learn more about what QWL is, or isn't.[2] Some of the managers attended the International QWL Workshop in Sweden in the winter of 1977. Others visited the Topeka project of General Foods to get first-hand information on the well-known pet food plant experiment based on QWL principles.

We were avidly reading articles and books on the subject and passing relevant quotes and references about QWL amongst ourselves. The air was filled with a mixture of excitement and ambiguity as we continued to learn about QWL and its potential impact on the organization. The external visits, the ongoing learning, the dialogue and exchange of theories and views about QWL were leading to a greater familiarity with and acceptance of the basic design concepts. We were moving closer to implementation.

In the spring of 1978, we launched a QWL pilot test in four of our seventy or more stores in Ontario. QWL was initiated to engage people actively in the redesign of their work. The outcomes of the project were to be mutual gains for both individuals (autonomy, variety, and learning opportunities), and the organization (greater effectiveness, increased productivity, improved sales and profitability). We started in a single store, and within three months had disseminated the thrust to three other stores to avoid the "encapsulation" effect.

With the active support and sponsorship of the local C.F.A.W. union (subsequently renamed U.F.C.W., United Food and Commercial Workers, after a merger with another union), we implemented the QWL program based on the joint involvement of management and employees in the redesign of work to achieve both the goals of the organization (getting its work done) and the personal growth of employees, and formalized in the Union-Company QWL Statement of Policy. (See Appendix I.)

THE NEED FOR RESEARCH

About eighteen months after initiating the QWL program, we sensed the need to examine what was or was not happening in the QWL stores. We were interested in what progress was being made, what changes were taking place, what barriers and issues were being confronted, and so on. Rather than rely on traditional quantitative research methods, such as questionnaires, to determine the state of affairs,[3] we chose an "action research" approach.[4] We felt this would enable our people to explore their own experience, give order to it, and subsequently take the initiative in reshaping their work environment.

We believed that an action research model was highly congruent with the principles and values of QWL, e.g., trust, joint involvement, and recognition of competence. We searched for a process that would engage store employees and managers, the "actors", in a meaningful process of discovery and evaluation of realities and problems around the state of QWL in the four experimental stores. We were looking for something that would help participants to determine how far they had come, to what degree the QWL initiatives had contributed to increasing the learning and the involvement of store employees in managing the business.

A research design team composed of two internal resource people (the authors) and a consultant from the Ontario Quality of Working Life Centre designed and implemented the participatory research project. From the outset, it was clear that participants themselves, i.e., store employees and management, would be expected to provide much of the energy and commitment needed to carry out the research. "In this way the social system is provided with a means of turning itself into a learning system that can adapt to changing circumstances by taking an active role in shaping its own future."[5] Whereas traditional research provides management with data on work patterns collected by a researcher, action research sets up a direct and continuous learning process between workers and management.

A proposal to proceed in this manner was presented to a joint union-company "core group"[6] for support and approval. This group, which met bi-monthly and provided guidance and support to the success of the QWL project, endorsed the action research model.

Ironically, a small group of senior management members was also interested in getting on with the research, but for different reasons. Uncomfortable with the decision to launch the QWL project in the first place (fearful about its perceived implications for sharing power, skeptical about its capability of enhancing the economic goals of the organization), this powerful minority hoped that any negative findings from the research would sound the death knell of the QWL project.

IN SEARCH OF A DIRECTION

Prior to any contact with the employees and managers in the four QWL stores, a two day search conference was initiated by the authors to examine and discover how organizations could effectively monitor and evaluate their own learning. A group of key resource persons was invited to attend, including research representatives of the centres for quality of working life in U.C.L.A. and Ontario, experts in process consulting, and several internal resources within the organization who were directly responsible for the QWL program.

Participants examined a number of research options (traditional versus action research) and reviewed dilemmas inherent in measuring qualitative shifts from old to new forms of work organization.

Out of this creative search conference came the realization that we needed to find ways of assisting employees and managers to let go of old models of hierarchy, power, and non-participatory decision making. It was decided that an action research project with its emphasis on direct client participation in measuring their own work lives could serve as an appropriate bridge to new models such as collaboration, joint design of the workplace, and sharing of power.[7] Asking the employees to define QWL for themselves, and then measuring their progress against that definition, would involve them directly in the evaluation process. This joint involvement with management would not only establish the opportunity for monitoring the ongoing QWL project, but encourage direct employee participation in solving workplace problems. In this way, they become involved in a continuing effort to improve the circumstances of their own work roles and organizational relationships.

RESEARCH DESIGN AND ORIENTATION SESSION

Following the search conference, a one-day orientation and training session was held with peer-selected researchers from each of the four QWL supermarkets. An existing employee task force[8] in each store was asked to select five people for the training experience who would be good at leading discussions and who had the trust of their peers. The training session was supported by members of the research design team who led participants through a creative process designed to raise major QWL issues that needed to be addressed, and to give participants the necessary skills and confidence to lead group discussions with their fellow employees at their home stores. After a brief introduction and explanation of the rationale for the day's orientation, a review of various research techniques was presented, as well as of the QWL values and benefits underlying the design team's recommendation to proceed with an action research model.

Any group or organization intending to survive and renew itself needs to establish a continuous learning process. Part of this process is likely to reflect on what is happening and what actions need to be taken now. Members of the organization in which efforts are made to improve the quality of working life are the best people to engage in this process. Whereas traditional research provides data from people doing the work to management through a researcher, action research sets up a direct and continuous learning process directly between workers and management.

Following this, a brief lecture highlighted the core objectives of QWL as communicated to employees at the outset of the program a year and a half before. In a lively discussion, participants exchanged ideas and reaffirmed their understanding of these concepts.

The twenty participants in mixed teams (members from each of the four stores) were given the task of responding to the following three questions: "When QWL was introduced in your store,

1. what did you expect would happen?

2. what actually happened in your store?

3. what needs to be done now to make it work?"

The cross-team composition of the groups stimulated a broad range of responses reflecting the varied experiences in the different stores. Participants were provided with stacks of blank cards on which they recorded their responses to the three questions (one response per card). During the lunch break, resource personnel sorted these cards into eight topic clusters. The individual statements on the cards under each cluster heading were presented as sub-issues. The eight major headings generated by the participants were as follows:

1. Incentive Plan. They felt that employees had been promised a pay-out if increases in productivity resulted from QWL. Two years later, they still had heard nothing more about incentives and wanted to know why.

2. Commitment to QWL. They were concerned about the many people in management, the union, and among their fellow workers who still did not seem committed to the change effort.

3. On-the-Job Learning and Development. One of the original objectives of the change project was to increase opportunities for employee learning on the job. They wanted to find out to what extent this had happened, since they felt management was constraining their opportunities to learn on the job by telling them there was no time or money for training.

4. Introduction to QWL. The introduction and orientation to QWL was questioned. Bitterness was expressed about having false hopes raised and a utopian picture presented initially and, since then, very little change.

5. Communications. Departments in the store were not communicating with each other. The adequacy of discussions between management and workers was questioned. They wanted to see if the QWL task force was providing relevant information to employees. Many felt that no one knew what QWL was.

6. Involvement and Participation. They felt store employees had gained little or no increased freedom on the job, no involvement in business decisions, and no increases in responsibility.

7. Teamwork and Support. They had no feeling of belonging nor being part of a team, and felt a general lack of cooperation between fellow workers. Some said they felt the research would show that there was even less cooperation between employees since the inception of QWL than there was before.

8. Role of Management. Management, they felt, had not changed. No senior management support or sanction for the QWL project was visible; they felt abandoned.

Each of these topics was discussed with participants at a plenary session to clarify and reaffirm that they relfected the issues requiring further discussion by their fellow employees and management. Participants found the issues such an accurate reflection of their concerns that an active discussion ensued about the value of QWL in general.

The remainder of the afternoon was spent in natural store groupings to simulate the projected discussions that were to take place at each store regarding the eight major problem areas. Each researcher-trainee was given the opportunity to practise leading small group dialogues and interviews, and trained in the effective use of tape recorders for data collection.

The simulation sessions raised several other issues not previously discussed or addressed by the design team. For instance how many employees should be interviewed, and should the store manager be present at all times? A second plenary discussion involving all participants designed a back-up questionnaire that could be offered to those employees who might be more comfortable writing than in a face-to-face interview situation.

The one-day research design and orientation session described above was filled with questions, concerns, creative ideas, excitement and frustrations. The researcher-trainees experienced an ambivalence triggered by the difficulty of separating themselves from their personal feelings and thoughts about QWL and the need to adopt a researcher's stance back at the store. This, in turn, raised the apprehension of research team members, because on their return it was expected that they would become the target of a barrage of questions and accusations stemming from the perception in the stores that the QWL exercise was not going as well as expected and "it was management's fault!"

DATA GATHERING AND COLLATION

One member of the research design team visited each store and assisted the five peer-selected researchers in that store to facilitate the small group discussions, set up adequate meeting places, and deal with any last minute concerns. If requested he or she would be available during the first discussion groups to support the store researchers, although he or she would not actually be present during the discussions. This decision was in accord with the QWL principle of removing dependency on support staff and furthering the self-sufficiency of employees. Each small group discussion with five to fifteen employees lasted between thirty-five and forty-five minutes. The majority of employees, including part-timers, participated in discussions on at least two or three of the eight headings that had been generated earlier. Middle- and lower-level store management and union personnel were included as equal participants. The role of the peer-selected researchers was clearly defined. They were not in any way to censor the discussions, but rather to facilitate them and try to clarify issues. The sessions were frank and exciting, with several people talking at once. A wide range of responses was elicited from different stores, varying from positive identification with QWL outcomes to outright skepticism about, if not disillusionment with, the results.

The format facilitated a "safe" open-ended exchange of ideas between individuals and departments and management in each store. Traditionally, very few meetings of this kind are held with store employees because of perceived and real pressures of the supermarket business. These small group research encounters provided people with a structure for dialogue and interaction. They represented a rare opportunity for store employees and managers to become more "visible" to each other, thereby laying the groundwork for future collaboration. In fact, so much learning emerged from these discussions that some groups moved right into problem solving. For many, the opportunity to sit down and discuss QWL in a small group was rewarding in itself, and people were eager to resolve current dilemmas on the spot.

About fifty small group sessions were held in the four stores and the tapes transcribed. Transcribing the tapes was difficult and time consuming because of several people talking at once and expressing a multitude of emotions. The transcriptions were returned to the peer-selected researchers who summarized and collated the data, and produced a separate report for each store. These individual store reports were presented to the employees for confirmation of accuracy. From these store reports a global summary was composed and presented to the union-company core group, as well as to all participating employees in the four stores.

ORGANIZATIONAL RESPONSES AND OUTCOMES

The intent from the beginning was to create a process for planned change that would be ongoing and self-determining at the employee level. Our strategy was to make only the minimum critical interventions necessary to get such a process started.

What follows is an outline of some of the outcomes of employee and management participation in this process. The list is necessarily incomplete because so much occurred that the authors have only anecdotal rather than direct measures of outcomes.

1. Reactivation of the Joint Union-Company Core Group. A meeting was held in which the global action research report was presented to the union-company core group. Both union and company executives accepted responsibility for having contributed to the lack of QWL success. They had not met as a group since the last round of negotiations, and now committed themselves to a series of monthly joint meetings to get back on track. The joint union-company core group has since continued to meet regularly to redefine its support of QWL as well as the various roles and behaviour changes required of other key actors involved. Furthermore, employees from the different store task teams have been invited to core group meetings to report on progress and to seek support and revitalization of QWL activity. Structural changes such as these have contributed to improved communication between the core group and store employees, and consequent widespread interest in and commitment to QWL values. It also spurred new ways of working together, both within the four QWL stores and between other areas of the division, beyond the conventional formats dictated by collective bargaining and grievance procedures.

2. Establishment of an Employee Incentive Plan. One of the most salient issues arising out of the action research project was the incentive plan. While an initial joint commitment (union and company) was made to establish an employee incentive plan based on bottom-line improvement of store results under QWL, prolonged delays had strained the credulity of employees in these QWL stores. The action research exercise generated many skeptical responses to the lack of follow-through on the plan. The following views were typical:

"The company doesn't really intend to give us an incentive plan."

"Some people don't want money, but respect and thanks for a job well done."

"Management doesn't know how to do it!" (create a plan)

"Do you mean the incentive is going to pay off in dividends for us, or does it mean just better results for the company?"

A key outcome was the final approval, of a viable employee incentive plan for the four QWL stores over and above regular compensation agreements deriving from a union contract. This has been in effect now for several years, allowing employees in QWL stores to share in additional monetary rewards based on bottom-line achievements in each store.

3. Increased Opportunities for Employee Learning and Skills Building. The establishment of an incentive plan led employees to request training in the process of budgeting. If they were going to be actively involved in generating store results, then they required new knowledge and skills in budgeting and planning. Accounting personnel from head office were recruited to help employees learn more about store budgeting and, thereby, assist in achieving results.

In the initial stage, employees learned about the major components of a budget, such as gross margin, controllable and non-controllable expenses, and net profit. In the next fiscal year, the plan was to involve them in co-determining store budgets with management. In addition to budgeting, the need arose to provide employees with other skills such as holding effective meetings, and training them in the operations of other departments. This would have the effect of providing them with the "big picture" of a store functioning as a total system rather than as separate (meat, grocery and produce) departments working at cross-purposes. While it was agreed this is an excellent idea, some stores are struggling with the difficulty of creating both time and space to hold these learning meetings in the face of peak volume demands for customer service.

4. Employee and Management Team Building. Some stores have regenerated the QWL task forces. Others are meeting in small groups, often with management. Some are meeting by department, and planning to integrate interdepartmental activities in the future. This divergence of responses is notable, for there is no single set of "how-to" steps for success in QWL that would be appropriate for every organization.

In one store, the first line managers responded to the research findings by requesting a three-day Transactional Analysis team-building seminar. They recognized the need to work at "unfreezing" existing attitudes and behaviours to be effective managers under a QWL scenario, and they had heard that previous interventions of this kind had been successful in other parts of the organization.

At this seminar they worked toward developing a team rather than managing competitively. In addition, they changed some of their perceptions about QWL values and learned to better appreciate what qualitative changes employees sought from their work. This group is now talking about the dissemination of such training to each department with the involvement of every employee.

5. Structural Changes. At the store level, three of the four stores abandoned the QWL task force and moved toward departmental work teams as the basic QWL unit. These teams meet regularly to discuss individual and organizational concerns. They involve most employees, on

company time and/or private time, with very high commitment from both employees and management. The fourth store is still using a QWL task force composed of elected representatives from each department to further their QWL objectives.

Mini-core group activities at the store level have been redefined to include facilitating QWL progress, as opposed to meeting only to hear employees' requests for changes in company policy or the collective agreement. The local mini-core group in each store consists of a store manager, regional manager, union business agent and one member of the joint union-company core group. They meet regularly to plan actions designed to implement QWL changes. Employees are invited to participate in these meetings.

A QWL management support group was formed to help managers learn more about how to give leadership in meeting QWL objectives and redefining management's role. This group meets monthly. The result has been improved relations between management and employees, and more opportunities for employee involvement in business decisions. These are only a few examples of how the action research process increased both personal and general organizational awareness of the need for change in both values and structures in order to allow QWL to progress from being a single "pilot" test to acceptance as a viable option for managing an enterprise.

CONCLUSIONS

At the time of writing, employees in three of the four stores experimenting with QWL have remained deeply committed to these objectives and are actively pursuing their action plans. Those in the fourth store are still unclear and struggling. Managers and employees of two additional stores have recently volunteered to join the initial grouping of four stores in QWL initiatives. Several other managers are experimenting informally with QWL-style programs. There appears to be no end to the emergent discovery process taking place.

This action research project has taught us that QWL needs ongoing management-union support from all levels and departments, not just from those closest to the actual QWL units. It has fostered greater awareness of the interdependence between all parts of our business. On the other hand, there is still a need to shape and disseminate change strategies to the total organization. Action research has made us aware of the need to manage the changing role of the manager and shown that QWL could not succeed with a completely "hands-off" approach. Originally, management was determined not to interfere with or restrain emerging outcomes, but their over-cautious approach backfired and they were accused at one point of "abandonment".

We are continuing to discover the need for temporary structures and responses to replace whole sets of traditional behaviours with new organizational norms that might enhance our success in achieving QWL. We have learned that our early work-redesign sessions raised some initial utopian expectations about QWL. Both employees and managers will have to work hard to anchor those expectations in day-to-day business realities and structures that integrate the improvement of the quality of people's working lives with the demands of doing business. These structures include creating ongoing built-in self-monitoring systems that enable people to measure how they are doing and, by informed choice, determine where they want and need to go from there.

From the action research described, union and management learned that there is no ideal structure or methodology for implementing QWL, other than a minimum critical structure[9] that unfolds from constant learning and experimentation and is further shaped by the workers experiencing the change(s). Employees learned that QWL is not a management program but a way of life that encourages and allows their direct participation in meaningful business decisions that affect them and the entire organization. We have discovered the need to renew our organizational learning about QWL--what it is, what it isn't--as well as to redefine our respective roles as managers and employees, union and company, "actors" and resource people.

In retrospect, while at this time the insights regarding QWL have not been fully assimilated, the change-oriented thrust of the action research project has contributed greatly to the initiation of specific action plans on the part of the people involved. In view of both its initial successes and shortcomings, the outcomes of this participative research project have provided us with a sound launching pad for an accelerated dissemination effort which is yet to come. Admittedly, this is slow in coming, for we are in a constant dialogue, if not dilemma, over the feasibility and appropriateness of QWL as a business strategy for the eighties and nineties.

In closing, we are aware that we can neither design nor redesign work in a way that will cover all contingencies. It is our opinion, at this point, that QWL is an intensely involving interdependent, emergent process that requires continuous reflection, learning, and revision. Perhaps we have just begun to know the real meaning of the sociotechnical systems "Principle of Incompletion".[10]

APPENDIX I

UNION-COMPANY STATEMENT OF POLICY RE: QUALITY OF WORKING LIFE

1. The purpose of the Quality of Working Life is to make work more satisfying for all employees, salaried and hourly, while maintaining the ability to deliver goods and services at reasonable cost and keeping the enterprise competitive.

2. If increased productivity is a by-product of the program, ways of rewarding the employees for increased productivity will become legitimate matters for discussion by the Union-Management Committee.

3. No worker or manager or foreman will lose his/her job, pay, status or seniority as a result of the Quality of Working Life Program.

4. The Union and Company will cooperate in QWL, giving the process a chance to prove itself. It may take many months before Union, Employees and Management adjust their behaviours to QWL. In addition, either party can terminate the Program on thirty days notice.

5. It is clearly understood and agreed that the collective agreement will be respected by both parties and no decisions or actions emanating from the QWL Program will in any way cause any party--either Management or Union--to relinquish its rights.

NOTES AND REFERENCES

[1] Warren G. Bennis. *Changing Organizations*. New York, McGraw-Hill Book Company. 1966. "Preface", p.vii.

[2] L.E. Davis and A.B. Cherns. (eds.). *Quality of Working Life*, Volumes I and II. New York, The Free Press. 1975; E.L. Trist and K.W. Bamforth. "Some Social and Psychological Consequences of the Longwall Method of Goal-Setting." *Human Relations*, Vol. 4. 1956. p.3-38; Ludwig von Bertalanrfy. *General Systems Theory*. New York, George Braziller, Inc. 1968; F.E. Emergy (ed.). *Systems Thinking*. Harmondsworth, Penguin. 1969.

[3] Some of the limitations of traditional methods can be found in: R. Rosenthal. *Experimenter Effects in Behavioural Research*. New York, Appleton Century Crofts. 1966; G. Myrdal. *Objectivity in Social Research*. London, Duckworth. 1970; W.J. Rustead. *Qualitative Methodolody*. Chicago, Markham. 1970. This was excerpted from M. Pilsworth and R. Ruddock. "Some Criticisms of Survey Research Methods in Adult Education." *Convergence*, October 1975.

[4] For a further elaboration of dilemmas in action research, see R.N. Rappaport. "Three Dilimmas in Action Research." *Human Relations*, Vol. 23, No. 6. 1970. p.499-513.

[5] A.W. Clark. "Action Research: Theory, Practice, and Values." *Journal of Occupational Behaviour*, Vol. 1. 1980. p.151-157.

[6] This represents a temporary enabling structure composed of senior management members and local union executives to provide resources for the QWL experiment.

[7] E. Trist. "Collaboration in Work Settings: A Personal Perspective." *Journal of Applied Behaviour*, Vol. 13, No. 3. 1977. p.168-278.

[8] Each store set up its own variation of a task force and used it differently to support its efforts in designing a QWL environment.

[9] A.B. Cherns. "The Principles of Socio-Technical Design." Human Relations, Vol. 29, No. 8. 1976. p.783-792.

[10] Ibid. (See Principle #9: Incompletion.)

GAINSHARING IN THE MILLWORK INDUSTRY

by

Bert Painter

ABSTRACT

A trailer manufacturing company within the millwork industry of Lower Mainland British Columbia agreed to develop and implement a method of payment whereby employee earnings might be increased without jeopardizing the company's competitive position in a relatively stagnant local economy. Within an industry with a history of antagonism to piece rates and mixed feelings about an old "contract" system, the development of a procedure to share economic gains between the company and its employees was cautiously undertaken. The process of design, implementation, review, and redesign has been the shared responsibility of shop representatives, union officials, and company management. The outcomes have included a substantial saving in materials costs for the employer and almost 20% increase in annual employee earnings (over and above a wage increase negotiated through normal collective bargaining). The process of collective bargaining does not seem to have been threatened by the gainsharing. Also, gainsharing seems to have brought improvement in overall job satisfaction marked by a significant increase in employee feelings of influence over decisions at work.

INTRODUCTION

Much has been learned since the early 1900s about what is required to make the economic participation of employees effective. Most of this learning has come from the problems associated with traditional incentive schemes.[1]

This report draws on the experience of one company, its affiliated trade union, and its employees, who worked over 15 months to design, implement, and redesign a productivity gainsharing program. This is an account of the factors leading up to the change, the benefits achieved, and the issues and difficulties encountered in implementation.

The study suggests, among other things, that managers should not assume that financial incentives will automatically motivate employees, regardless of the management style of the organization. Furthermore, to the extent that it is a motivating factor, an incentive system in itself cannot guarantee significant improvement in productivity, although there is a strong likelihood of other long-term gains.

A Matter of Economic Survival

This report concerns an experiment that occurred within the Lower Mainland British Columbia millwork industry, which resembles most small-scale business in North America. Historically, the industry has grown through the entrepreneurial drive of a few employers and the skill and craftsmanship of its work force. Yet, the nature of the industry is changing rapidly. Products such as kitchen cabinets, doors, windows and other components of the off-site construction industry are becoming increasingly standardized. The dominant technology is still machine tools as opposed to conveyor-belt-paced or automated processes, although the production objective has become high volume output with a limited customization to suit individual customer needs. The demand for products is extremely variable, with some seasonal patterns. Most recently, the local market has been penetrated by large outside competitors from eastern

Canada and the United States, partly due to economies of scale and sometimes to an advantage of lower wage rates. Meanwhile, individual companies have little influence over the increasing cost of raw materials charged by large suppliers. Evidence of the general economic squeeze upon the industry is the decline in the size of the local work force, down almost 25% in four years.

What is unique, however, about the Lower Mainland millwork industry as compared with most other small business is that employers representing 60 companies have joined with their employees' trade union, the United Brotherhood of Carpenters and Joiners, to form a Joint Conference Board with a mandate:

> to promote goodwill and cooperation within the industry;
>
> to improve communications between management and union;
>
> to provide a forum for discussion pertaining to the growth of the industry;
>
> to provide methods of upgrading and training; and
>
> to promote and improve efficiency, productivity and quality.

Each employee and employer contributes two cents a person-hour to fund the Joint Conference Board. The board is, therefore, a jointly-funded, jointly-managed, employee-employer coordinating body with exceptional support from the industry's work force.

One of the first steps taken by the Joint Conference Board was to conduct a diagnostic survey to identify the many requirements for improvement in both productivity and job satisfaction within the industry.[2] The diagnosis led to a series of proposals for possible action. However, there were strong forces impeding any initiative. Many of the proposals involved joint participation of management and employees, which implied a significant departure from the dominant management philosophy within the industry. In fact, the Joint Conference Board itself was the first tentative departure from the style of labour-management relations that had produced a history of industrial strife in the millwork sector. Creation of the Joint Conference Board was the initiative of a few individuals on both sides who believed in the need for change.

Another major obstacle to development was the reluctance of individual companies to share knowledge with other organizations in what is perceived to be a competitive industry. The risks associated with any experimentation also appeared to intimidate many of the companies that are of small to medium size. Here, however, the Joint Conference Board was able to play a unique supportive role. It could arrange financial support and consulting expertise to serve any individual member company.

One company, Artisan Manufacturing, subsequently entered into an agreement with the Joint Conference Board and the federal Department of Employment and Immigration to develop in its plant a work organization similar to the guidelines proposed in the diagnostic study. A main feature of this redesigned organization of work was to be a program whereby the employer shared with employees a portion of the financial gains from any improvement in the economic fortunes of the company.

What follows is a record of the Artisan experiment, which was recently reviewed at a conference of member companies and union locals.

THE CASE OF ARTISAN MANUFACTURING LIMITED

In June 1978, the level of business at Artisan Manufacturing was at an all-time low. This situation was so serious that Artisan employees did not press for an increase in wages during their collective bargaining in 1978. New construction and resource development within British Columbia were generally down, which had seriously reduced the demand for Artisan's main product, industrial trailers serving as portable bunk-houses or kitchen-diners.

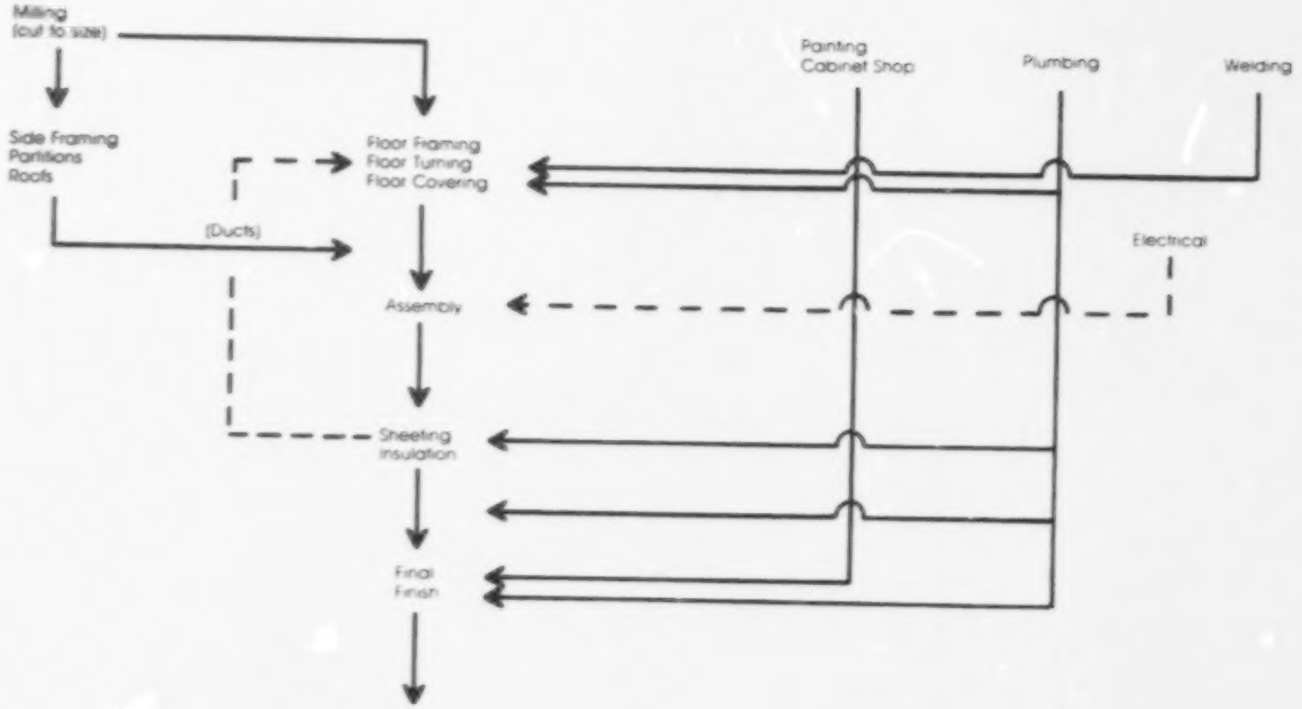
Artisan is one of four small to medium-sized industrial trailer manufacturing companies in British Columbia. In 1977-78, Artisan had annual sales of approximately $3 million, providing employment for a core of 25 workers, plus another 40 to 50 temporary employees. The local market was, however, significantly penetrated by a very large Alberta-based company. The ability of Artisan to compete with this major company was based upon its willingness to provide customers with a degree of custom work and modification of standard designs of trailer units, while at the same time maintaining quite a high rate of production along a man-paced assembly line. Figure I shows the basic sequence involved in making a trailer at Artisan.

Overhead cranes move side or end walls and roofs onto the floor frame for assembly. Units are moved along the assembly line by small hydraulic lifts that raise a unit off the floor and allow it to be pushed by one or two men to the next stage in the construction process. Feeding into this assembly line are plumbing and electrical installation services, plus the output of the cabinet shop which supplies interior furnishings of the trailer except for large appliances.

Historically at Artisan, each of these stages or elements in the construction of a trailer had been managed as a separate department, some of which had their own foremen, while the work force of each department usually shared a common trade identity, i.e., plumbers, carpenters, sheet metal workers or cabinetmakers. An overall plant superintendent determined the hiring or laying-off of personnel, scheduling of production, quality control and requisitioning of materials. One of the factors that gave rise to this experiment at Artisan was the desire of Artisan employees and management to transfer some of these responsibilities to the individual production departments.

The main concerns at Artisan in June 1978 were, however, the desire of employees for an absolute increase in earnings, and the desire of the employer to restore the company's economic viability and make it more competitive through an increase in productivity. Some employees were also concerned about the equity of the existing payment system, which rewarded persons equally according to skill

FIGURE I


Milling
(cut to size)
Side Framing
Partitions
Roofs
(Ducts)
Floor Framing
Floor Turning
Floor Covering
Assembly
Sheeting
Insulation
Final
Finish
Painting
Cabinet Shop
Plumbing
Welding
Electrical

level, regardless of their performance on the job. The solution suggested by management and virtually all employees was an experiment with an alternative work organization based upon work groups and sharing of productivity gains. Initially, it was termed an incentive program. (Discussion of the incentive idea had begun several weeks before the decision to collaborate with the Joint Conference Board.) Expectations of most management personnel were that productivity would increase by as much as 20%, and most employees anticipated corresponding increases in earnings of 15% to 20%.

The Process of Designing, Implementing, and Redesigning a Program to Share Economic Gains

The initial meeting of a steering committee of representatives from the Joint Conference Board, Artisan management, the trade union Local 1928, and three elected Artisan employees occurred in mid-June 1978, with the participation of B.C. Research and the federal Department of Employment and Immigration. It was agreed at this meeting that the development of a gainsharing plan specific to Artisan would be the responsibility of a small working committee of Artisan management personnel (3), a union representative (1), and Artisan employee representatives (3), supported by a staff member of B.C. Research.

The parties began the process with some lingering mistrust: between the employees and management; between the employees and their union; and most particularly, between the union and company management. The general source of that mistrust was a troubled history of industrial relations throughout the millwork industry. The desire to overcome that past had been one reason for the creation of the Joint Conference Board itself. There were also specific fears amongst employees and the union that management would try to revive some form of piece rate or an old "contract" system under which the industry had operated before unionization. The contract system, whereby a foreman contracted to do a specific part of a job (e.g., framing of walls and partitions) and then hired his own crew, was reputed to have paid some persons very well, while others gained considerably less than they felt they deserved. On the other hand, management personnel were particularly concerned, as were employees to a lesser extent, that the union would limit recognition of any individual performance in order to prevent the occurrence of disputes amongst the work force about differences in pay.

Most of the issues involved in designing a gainsharing plan arose from these mutual fears. The process of designing the plan required that the parties recognize and attempt to alleviate their respective concerns. The parties, at the same time, had to acknowledge their dependence on one another to achieve a workable plan. If any one of the parties withdrew from the process, it was understood that the project would cease.

Other steps were taken to support the parties in realizing a workable plan. One source of support was the steering committee, which reviewed the proposals of the working committee and provided an outside opinion. The role of the B.C. Research staff member was partly educational--to provide members of the working committee with experience gained from other gainsharing initiatives--and partly research-oriented, to generate additional information for the committee on how Artisan plant employees felt about their jobs and pay systems. Two surveys were conducted within the organization, one prior to implementation, and another one six months after implementation of the gainsharing plan.

Most important was the provision that decisions of the working committee would be implemented on a trial basis. Ideas had to stand the test of experience. The gainsharing plan itself had a trial implementation period of six months, during which the plan was constantly monitored and revised by the working committee. It was an operating assumption of the design process that a certain amount of learning would only come from doing. It was also envisaged that situations would change, and thus, whatever plan was developed it was likely to be incomplete and in need of revision. After a three-month development process--involving approximately ten meetings of the working committee and/or steering committee, two general meetings with plant and office employees, and one meeting with each of the plant work groups to obtain their suggestions for revision of a draft plan--a final proposal approved by the working committee was put to a vote by secret ballot amongst all plant employees. The initial plan was adopted by a vote of 27 employees in favour (79%) and seven employees opposed (21%). Eight months later, a vote on a revised plan produced a result of 68 employees in favour (92%) and six employees opposed (8%) to continuation.

Throughout the trial period the working committee met regularly. The committee provided a forum to resolve issues, some of which were evident, others totally unforeseen. Since the adoption of the gainsharing plan on a continued basis, some old issues such as the appropriate organizational basis for gainsharing (i.e., the individual work group or the total plan or both) have re-emerged. While various options were being examined to deal with this and other issues, the parties (union, management and employees) moved on to new initiatives in profit sharing and establishment of an employee stock-acquisition plan. In sum, the joint employee-employer working committee has served as the main vehicle for incorporating into the change process the participants' learning about gainsharing and about the nature and requirements of their particular organization.

Stage One: A Method of Productivity Gain Sharing

1. The division of gains between company and employees. Potentially the most divisive issue, which arose at the very outset, was what percentage of productivity gains would accrue to the plant employees and the company, respectively. No magic formula existed to apply to the Artisan case. The decision had to emerge from what the parties could agree was a fair arrangement. In a surprisingly short time, agreement was reached. Gains were to be split on a 50/50 basis between the company and plant employees. The company share was to be split among shareholders and office staff, with a third portion applied in such a manner as to allow for lower prices, thereby providing some payback to the marketplace. The precise division of the company share was left to the discretion of management. Clearly though, it was critical that fair treatment be afforded to the office staff, among whom were those persons responsible for making accurate estimates of the hours of work required on specific jobs.

2. Estimating standard hours. The gains that were the subject of this plan were potential gains in labour productivity. This was calculated as the difference between the estimated hours of work and the actual hours of work performed by plant employees on specific jobs. Estimates were based on measures of current productivity. There was no need for special studies such as time-and-motion measurement. It was agreed by all the significant parties that the standard would be the average of the actual recorded hours on a number of recent similar or modified standard jobs. Such an estimate would take into account the sorts of unforseen and uncontrollable circumstances that can make performance on jobs unusual. Such factors might include: panic jobs in which the entire effort of the plant was channelled to push work through on an extremely tight schedule; power failure in the plant; and delay in receipt of materials due to a fault of a supplier.

Once an estimate had been established for a standard product, it was not to be changed for similar jobs in the future without valid reason and without agreement of the working committee. The principle was that benefits to employees from productivity gains as a result of their initiative must not be eroded. As far as employees at Artisan were concerned, this principle was fundamental to their support of the gainsharing program.

3. Revision of standard estimates. After implementation of the plan and some improvement in productivity, a situation arose where the estimator requested a reduction in estimates on a particular job in order to gain an advantage over competitor companies. On this one occasion, employees agreed to a revision because they viewed it to be in their interest to expand sales volume and improve job security. However, the policy has since been set that whenever there is disagreement, the proposal for revision of estimates will be referred immediately to the working committee for decision.

4. The issue of what unit of work organization on which to base gainsharing. The formula initially developed for sharing amongst plant employees recognized the two different ways in which plant employees contributed to a gain in plant performance. In the first case, people were

to be rewarded for what they contributed by doing their own group of tasks well. Second, they were to be rewarded for what they contributed to the overall performance of the plant through cooperation and good planning.

Not surprisingly, there was a strong preference amongst employees for determining the employees' share of gains on the basis of their own group performance, rather than on the basis of overall plant performance. Management personnel supported this view because they felt the reward would have more meaning and thus greater incentive value to a small work group as compared with a whole plant organization. However, union representatives took the opposing view. They felt that some groups would have more of an opportunity to gain than others and, therefore, they maintained that the only equitable basis of gainsharing would be the total production plant.

This discussion tended to be dominated by what the respective parties believed ought to be the case, without much consideration of what was actually possible, given the technical design of the plant. The sequence of operations in the plant implied that most work groups were dependent upon the performance of the preceding department(s). A technical analysis of the operation revealed that the work group least in control of its own performance was the finishing department.

Nevertheless, a trial period of gainsharing began with the employees' share based 25% on individual group performance, and 75% on total plant performance. The intention was that division would shift during the trial period of six months to a basis of 75% on individual group performance and 25% on total plant performance.

Such a transition did not occur, for several reasons. The estimation of jobs according to the hours of individual work groups remained a difficulty, primarily in the case of custom as opposed to standard trailer units. Of greater concern, as the union had predicted, some work groups felt, after several months' experience with the program, that they were disadvantaged by the effects on their performance of forces outside their control. (For example, a delay in special materials such as carpeting could require that the finishing department move a unit off the line or outside the plant in order to maintain a constant flow of units along the line.)

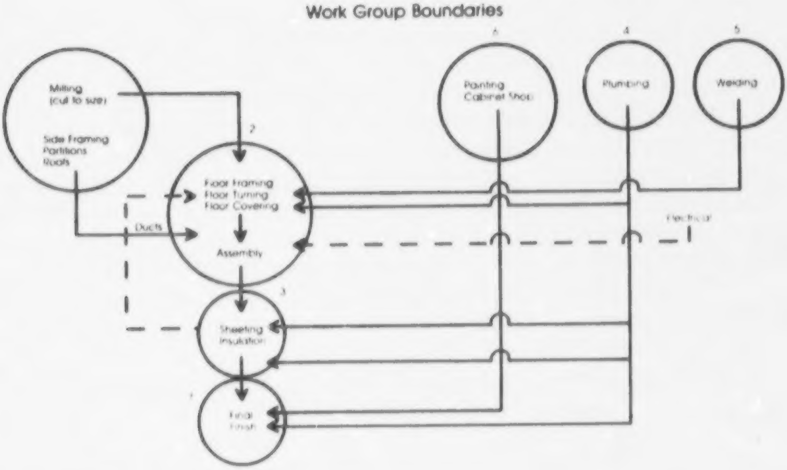
Learning from the actual experience of gainsharing, these "disadvantaged" work groups changed their preferences dramatically from an individual group-based to an overall plant-based gain share. This issue prompted a series of meetings between the working committee and the full set of work group leaders. The working committee decided eventually that the most equitable arrangement would be to base the employees' share solely on the total plant performance. This decision conflicted, nonetheless, with the persistent preference of nearly a majority of employees for a group-based gain share.

5. Defining the boundaries and responsibilities of work groups. A principle of the gainsharing process was that, within the boundaries of their work groups, participants should have the resources to exercise maximum possible control over factors affecting their own performance. Therefore, the drawing of work group boundaries was one of the most important decisions in designing a gainsharing plan. The issues that determined the grouping options available at Artisan were: a) the preferences of employees to maintain and work within their respective trade identities such as metalworker, journeyman carpenter, etc.; b) the technical requirements of a single production line (given the commitment to current utilization of space), the location of an overhead crane mechanism, and existing plant size. Within this limited freedom of choice, boundaries were drawn according to the degrees of dependence and interdependence between the historically-defined production departments (see Figure II).

An early proposal identified eight work units on which to base the sharing of gains.

The task of group 8--Indirect Labour--was unique in the sense that this group existed to support the work of all other groups, with the overall objective of benefiting the performance of the plant as a whole. The gain of the

FIGURE II
Work Group Boundaries


Work Group Boundaries
6
4
5
Milling
(cut to size)
Side Framing
Partitions
Roofs
Painting
Cabinet Shop
Plumbing
Welding
2
Floor Framing
Floor Turning
Floor Covering
Ducts
Assembly
Electrical
3
Sheeting
Insulation
7
Final
Finish

Group No.	Group Task(s)	Av. No. of Members
(1)	Construction of *Frame Components*, i.e., Milling, Side Framing, Partitions and End Frames, Roof Frames	8–12
(2)	*Assembly* of Framed Unit, i.e., Floor Framing, Floor Turning, Floor Covering, Assembly (Electrical Work Sub-contracted)	5–7
(3)	*Sheeting, Insulation and Heating* of the Framed Unit, i.e., Exterior Sheeting, Sheet Metal, Roof Metal, Heating and Insulating	8–12
(4)	*Plumbing*	2–4
(5)	*Welding*	2
(6)	*Cabinet Work and Painting*	3–5
(7)	*Final Finish*	5–8
(8)	*Indirect Labour/Plant Coordination and Maintenance*, i.e., Forklift, Shipping, Floor Sweeper, Clean-up, Utility Repairman, Plant Superintendent	5–6

TABLE I: RESULTS FOR THE TRIAL PERIOD WHEN THE 25% GROUP – 75% OVERALL METHOD WAS IN EFFECT

Month	Employees	Hours Worked	Hours Gained	Gain Share	Gain Per Employee	Average Gain Per Hour
September	61	6 756	475	$ 2 307	$ 37.81	$ .3414
October	75	9 109	323	1 635	21.80	.1795
November	49	6 204	724	3 935	80.31	.6344
December	39	4 016	563	2 657	68.14	.6617
January	52	6 785	234	1 207	23.21	.1779
February	68	8 599	1 014	4 598	67.62	.5346
March						
April	95	24 706	1 188	$ 5 781	$ 66.86	$ .2340

indirect labour group was to be calculated as the average of the gain made by each of the seven direct labour groups.

After discussion with foremen and crew members, the working committee combined a few of the units which were found to be most closely linked by the work flow. For example, the painting operation was found to be more closely linked with cabinetwork than with welding, resulting in a corresponding regrouping of personnel and equipment.

Individual employees assumed membership in work groups, first, according to the area of plant operation in which they were employed and, second, according to their seniority rights and the needs of individual groups, both of which criteria permitted employees to switch into new work areas if they chose. (It was assumed, however, that an employee might also work in a group other than his own on a temporary basis, such as several hours or even a few days.)

A more difficult issue than the assignment of employees was the selection of group leaders. It was decided that present crew leaders had the first right of refusal on the position of leader in the work group closest to the area of their current operation. Whenever crew leaders (foremen or lead hands) declined that role, or wherever there was no crew leader available, a leader was selected by the relevant group members in consultation with the working committee.

Aside from its production task, each group was assigned maintenance tasks, many of which were likely to be assumed by group leaders themselves:

1. Recruitment of the most effective work force for the group, given seniority considerations.
2. Determination of layoffs within seniority considerations.
3. Verification of job specifications and time estimates on work to be done by the group.

4. Requisitioning of stock materials related to the group's work.

5. Training and recommendation of promotions for employees within the group.

6. Quality control of all work done by the group.

Initial Outcomes--A Modest Improvement in Productivity and Employee Earnings

Table I presents a summary of gainsharing results during the trial period, and Table II contains results after its formal adoption. The gain in productivity calculated as a percentage of estimated hours of work was 6.4% during the trial period of eight months (September 1978 to April 1979). After the formal adoption of the plan (May 1979 to November 1979), approximately the same rate of productivity gain was achieved. Greater variation in monthly results also occurred during the latter period, ranging from the loss in productivity during July and September 1979, to the 18% gain in productivity during May 1979.

Employee earnings from gainsharing provided a 3½% to 4% increase in individual income beyond earnings from the fixed hourly wage rate. Full-time employees (n=35) averaged total gain share earnings of $620.70 during the 12-month period from September 1978 to August 1979.

Temporary employees who qualified for gainsharing (n=34) made average additional earnings of $241.30 during the same 12-month period.

Contrary to the fears of some employees, the total number of hours of employment during this period did not decline even though productivity increased.

The actual increase in the volume of business can be attributed only in part to the gainsharing plan. In the case of a few jobs, the company did gain a competitive advantage as a result of some increased flexibility in prices. More generally, what the company obtained from gainsharing was better data and improved knowledge of its production capabilities. Better understanding of estimating procedures also developed within the management group and amongst employees.

The outcomes for salaried office employees was not nearly as favourable. Gainsharing revealed a lack of coordination between the various functions of estimating, design, sales, and materials purchasing. This resulted in a number of production problems, such that the office staff's share of gains was almost totally nullified by charge-backs for delays or faults in production. This, in turn, dampened office staff enthusiasm for the gainsharing program.

Stage two: Profit Sharing and Employee Stock Purchase

1. Breakdown in the Administration of Gainsharing. The issue that emerged most strongly for office staff during the trial implementation was the time and cost involved in estimating hours for the stages of production performed by individual work groups (as opposed to the traditional practice of estimating only for the final overall product). These concerns were alleviated somewhat by the decision at the end of the trial period to base the plant employees' share solely on the performance of the overall plant. Serious problems remained, however, because orders for trailer units were sometimes scheduled for plant production before estimates could be prepared. Work groups complained, therefore, about having no production targets. Ironically, the problem got worse as business got better.

Gainsharing also increased the work of the accounting department. Some of this accounting workload could have been lessened by lengthening the payment period beyond one month to eight or ten weeks. Such a decision would have had to reflect what is a meaningful time-frame from the employees' perspective. The decision required employee input. It was not just an administrative decision. The example illustrates, however, that effective

TABLE II: RESULTS AFTER FORMAL ADOPTION OF THE PLAN BY A VOTE OF PLANT EMPLOYEES

Month	Employees	Hours Worked	Hours Gained	Gain Share	Gain Per Employee	Average Gain Per Hour
May	89	12 478	2 787	$14 001	$157.32	$1.1220
June	83	11 543	1 007	5 288	63.72	.4582
July	– Loss					
August	78	9 832	659	2 012	25.80	.2047
September	– Loss					
October	62	N/A	N/A	2 095	33.80	N/A
November	45	N/A	N/A	1 526	33.92	N/A

administration of a gainsharing plan depends upon well-developed policy having the support of all the stakeholders in the plan. This was the essential contribution of the working committee, particularly in the initial stages after implementation, when clarification and simplification of procedures were constantly demanded by employees and management alike. However, the working committee ceased to meet during the summer of 1979. Employee and office representatives appeared to lose interest as gains dropped off and a few production losses occurred. In the fall of 1979, productivity gainsharing was effectively discontinued, and replaced by a profit-sharing program. People had essentially "voted with their feet".

2. An opportunity for salaried staff to participate in the benefits. Gainsharing accentuated a long-standing resentment amongst salaried office staff that, in this particular organization, plant employees appeared to receive preferred treatment. Gainsharing actually increased the workload of some office staff, without providing any increased compensation, since potential office staff gains were usually wiped out by costly design or materials problems. This experience had a negative effect on how office staff participated in the implementation of gainsharing and, eventually, on the whole program.

In early 1979, members of the office staff and the shareholders of the company began to explore a profit-sharing concept to supplement the slim earnings from productivity gainsharing. Some salaried staff resisted the inclusion of plant employees in the profit sharing. Therefore, discussions of profit sharing were held in parallel to the proceedings of the working committee. It was later decided, however, that employees would share in profits, so that a new committee, composed of shop representatives, employer representatives, and a union officer, was created to oversee the development of a program of profit sharing integrated with a provision for employee stock purchase.

In January 1980, the company made its first distribution of profit shares to employees and office staff. Nevertheless, office staff endorsement of profit sharing did not solidify until the second year of the program, when the trustees granted a second level of profit sharing exclusively to salaried staff and work group leaders. This allocation had been accepted by the plant employees.

3. A simplified administration for profit sharing. Plant employees and office staff shared 20% of the company's gross profits (before taxes). The profit share was paid out on an individual basis, as a percentage of a person's annual earnings (in wages or salary).

Profit share payments were made once a year, although monthly calculations of company profitability were reported to the staff and employees.

Employees and staff were able to use their profit-sharing payments to purchase stock in the company. In 1980, ten out of 60 plant employees acquired stock. In 1981, 35 out of 100 plant employees became shareholders.

4. Cost savings and significant employee earnings. At the end of the first year of profit sharing, a payment amounting to 9% of wages or salaries was made to each individual with more than three months seniority with the company. For the second year, the profit share amounted to 18% of wages or salaries. The projected earning for the third year was more than 20%. This payment was in addition to a wage increase negotiated in 1980 industry-wide collective bargaining. Sharing of economic gains, therefore, has not been treated as a substitute for negotiated wage rates.

One of the major factors in generating this level of profitability has been a $200 000 saving in material costs during one year (1980). Recent interviews with employees indicate that the work force has become significantly more concerned about minimizing wastage of materials.

5. Changes in the quality of worklife. Although the sample size was too small to permit statistical testing, the major improvement reported in questionnaire survey results before (July 1978) and after (February 1979) implementation of gainsharing has been the greater influence employees believe they have over decisions affecting their work. This is consistent with their better feelings about the quality of supervision. On another

level, what employees regard as increased opportunities for learning and growth on the job may derive from more sharing of knowledge within work groups and greater support for individual initiative. There is also evidence of improvement in feelings of job security, which is apparently very much related to the more stable employment at Artisan during 1979. It is conceivable that the improved sense of job security may also have been a cumulative result of other changes in the work experience, such as a greater influence on decisions and more opportunities to exercise individual initiative.

CONCLUSIONS: GAINSHARING AS A LEARNING PROCESS

After an extended period of experimentation, Artisan Manufacturing Limited seems to have found the most appropriate way of sharing economic gains for its particular situation. The structure and organization of work was a key factor in the success of gainsharing. The structural principle was that, within the boundaries of the organizational units on which gainsharing is based, participants must have the resources to control their own performance. In other words, whenever work groups or departments are significantly dependent on the work of other units in the organization, they are not appropriate bases for sharing economic gains.

The nature of the product must also be considered when deciding which form of gainsharing is most appropriate. When the product is customized, the profit-sharing approach appears to be more suitable than a productivity-based approach. The lack of a firm production schedule in the Artisan situation had the effect of magnifying the number of changes in the production process required by a relatively narrow range of trailer products and sizes. This problem resulted in an unnecessarily complex administration of the productivity-based gain share.

Gainsharing of any type requires constant communication and sharing of information between management and employees. As well as information, influence must be shared. These are issues that ultimately affect management style and interpersonal skills. In the Artisan experience, gainsharing forced communication to develop, and increased the influence of employees on decision making. The style of management changed slightly in reaction to a change in the organizational environment, namely, gainsharing. What did not occur was a conscious shift in management philosophy or a proactive development of communications skills that would have facilitated the gainsharing process. This shortcoming in the Artisan context appears to have been recognized by the company when it hired a new staff member to provide training and coaching in communication teamwork for the work group leaders and managers. He is also assisting in the formulation of management philosophy within the company.

1. Not an "incentive", but a "bonus". At the level of the individual employee, the experience of gainsharing has added something to the understanding of money as a motivator. Employees reported that, during the initial two or three months of gainsharing they worked harder and pushed themselves more than usual. Expectations ran high in that a productivity gain of up to 20% was thought possible. When that scale of improvement did not result, the gain in earnings came to be regarded as a "bonus" (i.e., something "a little extra").

The experience at Artisan lends some support to the general notion that payment tied to performance must be of the order of 15% to 30% of normal wages or salary to be regarded as a meaningful incentive.[3] This experience also suggests the general principle that the premium component should not be so large that income variations from one period of payment to another produce insecure income circumstances for employees.[4]

Gainsharing provided a legitimation for persons taking more responsibility. It is said that "problems have become more visible", and that "people are now less inclined to let things slip by". This has also made the work experience for some employees more frustrating when problems are not attended to promptly. For other people, particularly some group leaders, gainsharing has made their work "a bit easier", because "everyone is more in it together".

2. New requirements of management. As a result of changes in the organization of work groups, new responsibilities were recognized and new requirements for effective management were identified. The new requirements were mainly needs for support, expressed by work groups striving to maximize their performance. For example, plant employees showed renewed concern about materials (such as carpet or appliances) arriving late and thus delaying production, or faulty designs supplied by the office, which necessitated disruptive alterations in the course of production.

In managing overall production, it was necessary that the concerns of the plant employees be represented before management decisions (of production scheduling, estimating, production changes, and purchase of special materials) were taken. Within the plant itself, coordination amongst eight work groups was required.

The working committee decided that the task of representing plant concerns and coordinating work groups should be combined within the role of plant superintendent. The occupant of the superintendent position was not enthusiastic about such a change from his previous responsibilities of supervising much of the work of individual production departments, so that this change in role became an issue.

Leaders of the work groups themselves confronted new requirements for communication with the work force about hiring, training, planning of work, etc. Some of the group leaders were more skillful communicators than others. Some of the leaders resisted the idea of holding discussions with their crew.

Senior management, for its part, resisted making a commitment to a more stable production schedule. Managers felt that an important marketing feature of the company's product was the ability to produce virtually on demand. Progress was made, however, in developing office management staff into a more effective management group by coordinating the functions of estimating, design, sales, and materials purchasing.

As well as working more attentively, some employees have also worked "smarter" since the implementation of gainsharing. A number of small-scale innovations in technique were made primarily by individuals who took it upon themselves to try out new ideas. Further improvements in technique and methods will likely await the full development of problem-solving sessions, which have just been initiated as part of the profit-sharing program. The only major engineering change to result from the gainsharing has been the introduction of a second production line to handle the more complex, customized trailer units which are assembled more slowly. This dual-line arrangement provides a buffer for the work groups towards the end of the production line, giving them more control over their performance and, therefore, more ability to manage their work.

The most significant social innovation was the spontaneous organization of group leaders into a sort of shop council that meets each morning to plan the day's production, iron out potential problems, and coordinate the temporary transfer of employees between work groups to balance manpower with production requirements. The joint employee-employer trusteeship of the profit-sharing program continues the participative process of the working committee. This is a process which is still unique for the millwork industry.

(3) Diffusion to other companies. Although this case has focussed on a single company, its progress was of interest to others within the industry. The Joint Conference Board has been the primary vehicle for the dissemination of knowledge to other member companies about the innovations at Artisan Manufacturing. A detailed report was made to member companies and union officers after the first stage of implementation at Artisan. At least one company responded by initiating its own form of plant organization by self-managing work groups in place of the traditional supervisory roles. On an industry-wide basis, a training program has been provided to support other such participative management initiatives.

In March of 1981, Artisan employees and management made a further report to the membership of the Joint Conference Board. The intent of this report was not to encourage other organizations to copy the Artisan approach, but rather to provide information to assist others to find their own solutions. In this way, gain-sharing has been a first step in improving the quality of working life, not only for Artisan, but for the whole millwork industry.

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INTRODUCING EMPLOYEE PARTICIPATION IN OWNERSHIP AND DECISION MAKING

by

Richard J. Long

ABSTRACT

This paper describes the implementation and effects of several major changes in the structure of ownership and employee participation at an electronics firm located in Western Canada. These changes include: (a) purchase by company employees of one third of the common (voting) stock of the company; (b) placement of three employees on the nine-member board of directors; and (c) establishment of an elected employee council. The effects of these changes were evaluated over a two-year period using a variety of methods, including interviews, personal observation, examination of company records, and questionnaire data collected before and after implementation. While the employee ownership system was received very favourably by both managers and non-managers, the positive effects expected did not materialize, as job attitudes either showed no change or actually deteriorated. It was concluded that a lack of employee participation in decision making was responsible for these results, and possible conditions for the success of such innovations are discussed.

INTRODUCTION AND BACKGROUND

This paper describes the implementation and assesses the effects of several major changes in the structure of ownership and employee participation at an electronics firm. These changes included conversion to partial (one-third) employee ownership, worker representation on the board of directors, and the establishment of an elected employee council. It is hoped that it will provide some insight into the issues involved with the successful development and utilization of these types of innovation.

At the time the project began (May 1978), the company employed about 150 people. Since its inception in 1965 the firm had expanded from developing and producing a few products associated with the space industry to a varied range of products, such as earth stations for tracking satellites, payloads for weather balloons, systems engineering, agricultural instrumentation and advanced telecommunications equipment. Although the firm was wholly owned by a major Western Canadian university, it had operated independently on separate premises since incorporation as a limited company in 1972. It operated in a highly dynamic environment, and its work force could be characterized as young, well-educated, and involved in mainly professional or semi-professional jobs. The success of the company was directly dependent on the creativity and commitment of its employees. The firm was not unionized.

In late 1977, it became apparent that for the firm to continue to expand, a new ownership structure would be necessary. The firm had a severe capital shortage, compounded by a large loss the previous year, and the university was unwilling to invest additional funds. Over the years, management had repeatedly promised company employees an opportunity to buy into the firm if and when the university became willing, and many employees had expressed a strong desire to do so. Company management also believed that partial employee ownership would provide a number of benefits to the firm, in giving the firm more of a market or profit orientation, in maintaining or enhancing what were already considered to be favourable employee job attitudes (such as commitment and motivation), and in enhancing employee participation in decision making. In late 1977, the company's board of directors approved in principle the concept of partial employee ownership, and in May 1978, a consultant on employee ownership systems was engaged to facilitate development of an employee ownership plan.

Before describing the development of the employee ownership plan, however, we will briefly discuss the theoretical and empirical foundations on which the plan was based. Following that will be a detailed description of the development and implementation of employee participation in ownership and decision making. The next section will employ a variety of methods to provide a comprehensive evaluation of the effects of these innovations, both initially and over the long run. The final section will attempt to draw some conclusions about why events occurred as they did and what factors may affect the success or failure of this type of innovation.

THEORETICAL AND EMPIRICAL FOUNDATIONS

Parallelling a resurgence of interest in and formation of such enterprises in North America, in recent years there has been a growing accumulation of evidence linking employee ownership to favourable consequences.[1] For example, Conte and Tannenbaum[2] compared a matched sample of some 30 employee-owned (EO) firms and 30 conventional firms and found the employee-owned firms to be 1.5 times as profitable. It should be noted, however, that there have been instances where EO has not met with success.[3]

Employee ownership is thought to lead to positive consequences in two main ways. First, ownership itself is expected to positively affect such job attitudes as commitment to the organization, motivation, and satisfaction, as well as enhancing factors such as cooperation, work group norms, and receptivity to change. These, in turn, are expected to lead to a number of other favourable consequences, including decreased turnover and absenteeism, improved industrial relations climate,[4] and improved organizational performance. A conceptual framework illustrating these possible relationships in more detail is available elsewhere.[5] Second, employee ownership is thought to increase employee participation in decision making (PDM), which is also believed to be linked to favourable job attitudes and organizational performance.

Whether and how employee ownership significantly affects the patterns of participation and influence within the firm is a subject of considerable importance, particularly since some studies[6] have concluded that the most important way in which employee ownership contributes to organizational performance might be through increasing PDM. In and of itself, employee ownership only provides a rather limited number of what might be termed "formal" mechanisms for employee participation, such as voting in the election of the board of directors, attending shareholder meetings, and receiving financial and other information. The use of additional participation mechanisms, such as an employee council, varies considerably from case to case.

It has been argued elsewhere[7] that employee ownership may increase employee participation and influence beyond the extent indicated above by increasing the desires of both workers and managers for worker participation. It is posited that ownership will increase both the interest of non-managers in company affairs, and the perceived legitimacy of their becoming involved in the decision-making process. Employee ownership is hypothesized to increase managers' desire for worker participation by increasing perceived legitimacy, by strengthening the belief that workers will now participate responsibly, and in response to heightened employee desires for more influence. These increased desires may not be confined only to organizational policy decisions, but likely also may be directed toward job and departmental decisions.

There is some evidence from employee-owned firms that these formal participation mechanisms can lead to increased actual participation, as perceived by employees,[8] although this does not always occur.[9] Broader empirical studies of various types of formal participation systems have also provided support for a link between formal and actual participation, both in Europe[10] and in North America.[11]

There is a very large body of literature dealing with the relationship between worker participation/influence and variables such as job attitudes and organizational performance. It has been argued that worker participation will lead to improved job attitudes (particularly commitment, motivation, and satisfaction), increased receptivity to organizational change, an improved quality of decision making and implementation, and generally improved organizational effectiveness.[12] While the evidence on this issue is not entirely consistent, it seems fair to conclude that participation generally leads to improved job attitudes, less resistance to change, and improved productivity.[13]

DEVELOPMENT AND IMPLEMENTATION OF EMPLOYEE OWNERSHIP

Development of Ownership Plan

After preliminary discussion with the consultant, who was also a professor of management at the local university, it was decided to establish a task force composed of employee and management representatives from all levels and areas of the firm. The purpose of the task force was to assess employee attitudes, needs, and aspirations with regard to participation in ownership, and to formulate an employee ownership plan that would meet the needs of all parties involved and make a strong contribution to organizational effectiveness. Membership was voluntary and included engineers, technicians, middle and junior managers, machinists, and salesmen. The first meeting, chaired by the executive vice-president, took place on May 25, 1978. Shortly thereafter, the consultant developed a comprehensive questionnaire and administered it to all company employees. The object was to collect baseline data to be used in assessing the effects of employee ownership, when and if it was implemented.

The first two meetings of the task force were spent in providing two types of information to members. First, the consultant provided each member with a package of research studies and other literature dealing with the concept of employee ownership, in order to enable members to assess for themselves the viability of the concept and to provide background information on characteristics of successful employee ownership plans. Second, a detailed presentation on the financial situation of the firm was made to allow members to assess the short-term and long-term financial viability of the firm.

In a series of meetings, the task force then identified the questions, concerns and needs of the employees, and developed an interim report for dealing with these. Decision making in the group tock place by a simple majority vote. The following objectives guided the development of the plan:

1. All employee-owned shares should be voting shares and must be broadly held across the employee groups.

2. The amount of equity purchased by employees must be significant.

3. Ownership should be direct, not through a trust.

4. Acquisition of shares should involve some employee financial investment, but in return they should receive a "real" asset.

5. Participation in the plan should be voluntary.

6. There should be opportunities for future employees to acquire stock.

7. Employee-owned shares should not pass to non-employees.

8. Employees must acquire significant influence in the operation of the firm.

This report was circulated to all employees in early August, and divisional meetings to discuss the plan were held. Based on this feedback, the task force developed a draft plan which was reviewed in September by the company board of directors and the university board of governors, who stipulated some modifications to the final plan. The final plan received approval from the company and university boards on the condition that evidence be provided that at least 50% of eligible employees would participate. At a meeting of all company employees held in December, 1978, over 96% of those present indicated such an intention.

The Employee Ownership Plan

Some 250 000 common shares were to be initially offered to eligible employees at $1.00 each, giving the employees ownership of one-third of the company. To reward employees for past performance, and to encourage broad participation, this price represented a very significant discount from the assessed book value of the shares (approximately $3.91). All shares were voting shares and carried the usual rights to dividends and information. Employees were entitled to elect three of the nine members of the board of directors. All permanent employees with six months seniority were eligible, and the initial amount of stock available to each employee was based on seniority and level of responsibility. Assistance in purchasing shares was provided through an installment plan and bank loans.

An employee may sell stock at any time, but may sell only to other employees through the company treasurer, acting as an agent, at prices determined quarterly by the company auditor. Individuals who leave the employ of the firm must either sell their stock or have it converted to non-voting stock carrying a fixed rate of return. No employee (manager or non-manager) may hold more than 3.5% of employee-held shares, and employees owning little or no stock receive first priority on shares which come available. If available stock is insufficient to meet demand, the company is obligated to issue new shares at least once a year. Should a new class of voting stock be issued to outside investors, the combined holdings of the university and the employees must always be greater.

Employee-shareholders are to be provided with quarterly financial statements, accompanied by a report from the president, and employee-class shareholder meetings are to be held quarterly. The plan also calls for the establishment of an employee council, consisting of two elected representatives from each operating unit and representatives of management. The council meets at least monthly, and is intended to communicate employee concerns to management and provide consultation on major company policies. The chairman is elected from the non-managerial members.

Implementation

The shares were offered to employees in early January, 1979. All available shares (250 000) were purchased and 83.3% (120) of eligible employees participated in the plan. The amount purchased ranged from the minimum $200 to over $4 000, and the median was about $1 600. The plan officially took effect April 1, 1979, and three employee directors were subsequently elected from a slate of nine candidates. These three could all be described as technical specialists with some management responsibilities. No senior managers were elected to the board, although two were candidates. In August, the second set of evaluation questionnaires was administered to all employees.

At this point, it is worthwhile to examine why so many employees purchased shares in a company that had declared a loss of more than $500 000 in its last fiscal year. Indeed, at the outset many employees viewed development of employee ownership as a management scheme to raise capital which could not be obtained elsewhere. However, the process through which the plan was developed played a key role in overcoming suspicions and skepticism. Many individuals were favourably impressed by the highly participative manner in which the employee ownership plan was developed with extensive involvement of employees. Many people echoed the sentiments of one manager, who stated that "without the employee ownership task force, employee ownership would not have gotten off the ground". Indeed, many cited the process used to develop the plan as a model that should be used in making other policy decisions. In other words, this process set the tone for how employees expected decision making to take place in the future.

There appeared to be at least three underlying motives for the purchase of shares. Some believed it to be simply a good financial investment. Second, many long-time employees believed that they were already putting much of themselves into building the company, through unpaid overtime work and acceptance of a lower than average salary scale, and they believed it to be equitable to share as owners in the fruits of their labour. Finally, and perhaps most importantly, many employees saw employee ownership as a mechanism to enable them to continue to be involved in company decision making. When the firm had started, it had been small, with informal and close relationships between management and employees, as well as easy and extensive communication. Indeed, it was not unusual for work to stop during an afternoon while all employees discussed and voted on major company decisions. As the company expanded rapidly during the mid-seventies, this intensive involvement in decision making and information diminished, and the distance between top management and employees increased. Many believed that establishment of employee ownership and formal participation mechanisms would again allow and promote employee involvement in decisions, particularly those at the organizational policy level. Because of the nature of the firm, there had always been a higher degree of autonomy at the individual level than in most firms.

EVALUATION OF RESULTS

Results of these changes have been monitored on a continuous basis since employee ownership was implemented. Methods of evaluation included interviews, direct observation, examination of minutes of meetings and company records, and questionnaire data collected before and after implementation of employee ownership. Questionnaires were administered to all company employees on three occasions: June, 1978 (about seven months before employee ownership - wave (1); August, 1979 (about seven months after employee purchase - wave (2); and in June, 1980 (about eighteen months after employee purchase - wave (3). They were administered in groups of 10 to 20 employees, on company time, by the consultant/researcher personally. Although employee names were not placed on the questionnaire, each questionnaire was marked with an employee identification number, to enable comparison of identical employee groups over time. This procedure resulted in 147 usable questionnaires at wave 1, 184 at wave 2, and 248 at wave 3, representing response rates of over 80% in each case.

The questionnaire used was a slightly modified version of one specifically designed to measure variables thought to be affected by employee ownership.[14] It sought three main types of information: (1) perceptions of the employee ownership system, (2) perceptions of employee participation in decision making, and (3) key job attitudes and perceptions of organizational attributes such as communication and cooperation.

Several noteworthy trends occurred in the company during this period. First, the company's financial performance, which had begun to improve before employee ownership was implemented, continued to improve between January 1979 and June 1980. Share prices rose substantially, from the $1.00 initial level to about $1.50 in June of 1979 to $2.10 in May of 1980. Second, there was a rapid expansion in the number of employees from June 1978 to June 1980--from about 150 to nearly 300. In June 1978, the majority of employees (57.2%) could be classified in either professional, semi-professional, or managerial categories. Most (about 80%) were male, education level was quite high (87.7% had completed high school and 30% held university degrees), and average age was quite low (about 31.5 years). A substantial number (32.6%) had more than five years service with the firm, while less than 30% had service of a year or less.

The new employees differed in terms of sex (more females), age (much younger), marital status (fewer married), and job type (fewer managerial). They also differed in terms of stock ownership. Few had been able to acquire stock in their short time with the company, while over 80% of the longer term employees owned stock. Thus, compared to 1978, the work force by 1980 had to significantly lower proportion of males (down to 69%), average age (down to 29.2 years), and proportion who owned stock (down to about 40%). The average length of service was also much lower, with almost 40% having less than one year's service, and only 17.4% more than five years' service.

For the purpose of analysis, respondents were split into several subgroups. New employees were excluded, since they did not respond to the earlier questionnaires. The resulting "longer term" group of respondents was divided into groups of "managers" and "non-managers". Another group, consisting of those non-managerial shareholders who filled out each questionnaire, was also created.

While the effects of employee ownership were monitored on a continuous basis (and is still being monitored at the time of writing), it is convenient to present the results of this evaluation in two parts. The first part reviews the initial or immediate effects, covering the period up to August 1979, when the first set of evaluation questionnaires was administered. The second part examines the longer term effects, covering the period to June 1980, some eighteen months after employee purchase, when the second set of evaluation questionnaires was administered.

Initial Results

By August 1979 (about seven months after implementation of employee ownership), all evidence pointed to relatively little change in job attitudes. In interviews, neither managers nor non-managers were willing to state that employee ownership had caused major attitude change, although a considerable number perceived slight improvements in some attitudes, and many believed that attitudes might have deteriorated without implementation of employee ownership. Questionnaire data tended to confirm this, as neither managers nor non-managerial shareholders showed significant changes in any of the key job attitudes.[15]

However, employees did show a very favourable assessment of both the employee ownership system and its accompanying institutions. Among all respondents, a large majority (76.3%) believed the system to have more advantages than disadvantages, with only three (1.7%) believing the disadvantages to outweigh the advantages.

Respondents were also asked to identify, in open-ended questions, the nature of these advantages or disadvantages for workers, managers, and the company as a whole. Among non-managerial shareholders, the most frequently cited advantage for workers was "greater influence in decision making" followed by "monetary gains" and "chance to benefit from own efforts". Other advantages mentioned included increased "sense of pride in belonging" to the company and "better knowledge of company". The most frequently cited advantage for managers was "improved communication to managers" followed by "monetary gains", "more conscientious workers", and "better cooperation from workers". For the company as a whole, the most frequently cited advantages were a "more efficient work force", "better morale", and "improved company performance". Other advantages were "improved financial structure" and "better communication".

Relatively few cited disadvantages. Disadvantages for workers were varied, with several pointing to "risk of loss", while two persons indicated that "frustration is caused because worker participation has not increased". Cited disadvantages for managers varied even more widely as no two individuals cited the same factor. They included "more negotiation and discussion", "increased accountability to employees" and "risk of loss". For the company, the main factor cited was a possible slowing of decisions caused by a need for more consultation.

Respondents were also asked to evaluate the three formal participation mechanisms. Among all respondents, a large majority (87.8%) believed it a "good" or "very good" idea for non-managers to be on the board, and 70.6% thought it "quite" or "very" important to them personally. With regard to the employee council, 53.3% believed it to be either "quite" or "extremely" worthwhile, while only 5% believed it "not worthwhile" (the remainder were unsure). Finally, more than two thirds (69.1%) of the shareholders believed the quarterly employee shareholder meetings to be worthwhile, with just one individual suggesting that they be discontinued.

In terms of actual patterns of influence in decision making, two significant increases were noted. While neither managers, non-managers, nor shareholders perceived significant increases in worker influence in general, shareholders did perceive a significant increase in their personal influence, most notably at the organizational policy level. This is not very surprising, since the participation mechanisms introduced were aimed mainly at this level of decision making. Non-managers also perceived that supervisors were more open to participation. It should be noted, however, that there was a wide variance between individuals on these issues, with some believing increases had taken place while many others perceived no change.

In sum, the impact on job attitudes of conversion to employee ownership did not appear to be large, although the plan itself was very well received and evaluated highly. There might be a variety of explanations for this apparent lack of effect, such as insufficient time for the effects to be felt. Alternatively, many managers believed that morale would have declined in the absence of employee ownership, arguing that the problems caused by rapid expansion during this period would otherwise have caused a negative change in attitudes.

There may be another explanation, however, for the apparent lack of attitude change, and this deals with employee participation in decision making. For example, after examining three employee-owned firms, Long[16] concluded that the extent to which employee ownership brings about increased employee participation in decision making might be the greatest single factor in whether employee ownership leads to beneficial consequences.

Impact of Participation in Decision Making

In order to examine the extent to which participation in decision making may have influenced the results, two subgroups of non-managerial shareholders were selected for further analysis. One group consisted of those individuals who reported no change at all in levels of participation (16 persons) and the second group consisted of all those reporting at least a slight increase in two or more aspects of participation (15 persons). While both groups indicated virtually indentical amounts of personal and worker participation before employee purchase, the "increased PDM" group showed a significant increase in personal participation and a positive direction in worker PDM by wave 2, while the "unchanged PDM" group showed no significant changes. As a result, by the second assessment period the "increased PDM" group was significantly higher in both worker and personal participation than the "unchanged" group. These two groups did not differ significantly from each other in any of the personal characteristics, including sex, education, marital status, length of service, age, rural/urban background, job type, or amount of stock owned.

Regarding key job attitudes in each group over time, very different patterns emerged. Specifically, the "unchanged PDM" group showed a negative direction in all eight key job attitudes, and significant declines in integration, general satisfaction and concern for the performance of others. Shareholders who experienced increased participation indicated a positive direction in seven of the eight job attitudes, and a significant increase in organizational involvement. While the two groups did not differ in any of the eight attitudes before employee purchase, the "increased PDM" group was now significantly higher than the "unchanged PDM" group in organizational involvement, commitment, motivation, satisfaction, and receptivity to change.

These results suggest that participation in decision making may have played a key role in moderating the effects of employee ownership to this point. Those shareholders who experienced at least a slight increase in participation generally showed a positive direction in their attitudes over time, while those who experienced no increase in PDM not only showed no increase in any variable, but actually declined significantly in several key job attitudes. As has been seen, the net effect of these opposing trends resulted in no overall change in attitudes.

Two other observations about the role of participation are worth noting. First, perceived worker participation at all three decision levels, and personal participation in job and department decisions, were all strongly related to job attitudes, although different aspects of PDM were most strongly related to different attitudes. However, personal participation in organizational policy decisions was found to be much less strongly related to job attitudes. This is particularly interesting since personal PDM in job decisions was the only aspect of participation to increase significantly since employee purchase. Second, it was found that employee participation in decision making was much more strongly related to job attitudes after employee purchase than before employee purchase. This may indicate that employee ownership has increased the salience or importance of PDM in the eyes of employees.

Longer-Term Results

It became increasingly apparent that job attitudes were not improving, and indeed that they were declining. By June of 1980, non-managers showed no improvements in any attitude since the August 1979 evaluation, and significant declines in motivation, general satisfaction, attitude toward change, and trust in the organization. Shareholders showed similar results, although the decline in general satisfaction was not significant. In comparison with the period before employee purchase, non-managers were not higher in any of the key job attitudes, while integration, involvement, motivation, attitude towards change and trust in the organization were significantly lower. Shareholders were also higher in none, and significantly lower in integration, motivation, satisfaction, attitude toward change, and trust in the organization. Managers, perhaps surprisingly, showed no significant change in any job attitude.

In terms of participation in decision making, questionnaire data indicated no increases since the last evaluation, and both non-managers and shareholders believed that worker influence in organizational policies had declined significantly. Non-managers also indicated that the leadership style of their supervisor had become significantly less participative. Overall, the gap between actual participation and the amount desired by non-managers had not changed significantly, and remained large. Although they agreed on desired amounts, in each case managers perceived the gaps to be much smaller than non-managers perceived them to be, primarily because managers perceived much more worker influence than did non-managers.

Compared with before employee purchase, no group showed significant increases in worker or personal participation at any decision level. However, managers did show significant declines in the extent to which they believed that worker decisional deprivation existed. A summary of the pattern of participation over the two-year period indicates that some non-managers initially believed worker participation had increased, but by 18 months after employee purchase, virtually none believed that increases had taken place.

This lack of change in participation may explain the lack of positive change in job attitudes which employee ownership had been expected to bring. It may well be that this lack of change in PDM violated the expectations of employees that employee ownership would provide a vehicle through which their input into organizational decisions could be maintained and enhanced, thus causing a backlash against management and negative attitudes toward the organization. This is evidenced by the drop in trust in the organization, which initially occurred among those who believed no changes in PDM had occurred, and then spread when it became evident to most employees that worker PDM had not, in fact, increased and was not likely to do so.

This explanation is supported by the declining value placed by non-managers on the formal participation mechanisms instituted as a result of employee ownership. Specifically, there was a significant decrease among non-managers and shareholders in the belief that the employee council was worthwhile. Less than one third now believed it worthwhile, compared to one half who believed so ten months earlier. Similarly, the number of shareholders believing the quarterly shareholder meetings to be worthwhile dropped from about two thirds to less than 40%. However, in contrast to these trends, the numbers believing it to be a "good idea" and "personally important" for non-managers to be on the board of directors showed no change whatever.

These results were supported by observational and interview data. For example, by January 1980 there was a widespread perception that the employee council was not functioning as it should, and an appraisal of the council was conducted. It was found that most non-managerial council members believed the council was dominated by one or two powerful top managers, and was peripheral to the main process of organizational decision making. The council rarely received any input from management, and proposals that the council made to management often seemed to receive no action. Although a subcommittee was established to draft new procedures to revitalize the council, key proposals to bring the council into the mainstream of decisions did not gain management acceptance. As a result, the council has continued to focus on a narrow range of issues, mostly related to personnel policies. Indeed, it has become increasingly difficult to find members to sit on the council, particularly among senior employees.

Attendance at the quarterly shareholder meetings has been declining from about 80% to 90% of those eligible to about 40% to 50%. There is a widespread feeling that "the credibility of much of the information and answers presented by management is open to question, so what is the point of attending?" Except for the annual election of employee representatives to the board of directors, these meetings are not used either to make decisions or to provide any significant review of decisions made by management.

Several recent incidents were cited to the researcher by employees as evidence that management does not want to involve employees in the making of significant decisions. The most frequently cited was a major reorganization that was carried out (in June 1980) with no consultation with employees or even any advance warning. There was a widespread feeling that the reorganization and the way that it was carried out were very unfair to many long-term company employees and managers. Subsequently, trust in the organization and perceptions of managerial fairness, which had already been declining, dropped even more sharply. This incident seemed to confirm the suspicions that had been building in the minds of many employees as they waited for the increased participation that they had expected.

There were other signs of a deteriorating employee-management relationship during this period. A major one was the increasing divergence in perceptions of employees and managers. While managers and non-managers tended to have similar perceptions of most organizational characteristics before employee purchase, they differed significantly on many matters two years later. For example, managers generally saw management-employee communication as improving, while employee owners did not. Similarly, managers believed that managerial fairness had increased, while employee-owners believed that it had declined significantly. It has already been noted that managers now perceive worker influence to be significantly higher than that perceived by non-managers, although they did not two years ago. These trends suggest that management is becoming increasingly isolated from non-managers, which is likely both a cause and an effect of the deteriorating employee-management relationship. This does not augur well for the future, since management is not likely to take corrective action when it does not perceive serious problems.

Trends in Ownership

Concurrently with these trends, a number of other forces have been at play. One of the most significant is a steady decline in the proportion of employees who are shareholders. At employee purchase, in early 1978, about two thirds of the total work force were owners. However, rapid company expansion reduced this to about 55% by August 1978, since new employees generally did not purchase stock, which was priced at about four times the initial discounted price. Most of the stock that did become available was purchased by those already holding stock, and by June of 1980 the proportion of the work force who were shareholders had dropped to about 40%.

One other notable event was the approval, in September 1979, by employee shareholders of a purchase of shares in the company by the provincial government. In return for a large cash investment, the provincial government obtained 25% of the voting stock of the company, and the right to appoint three directors to a 12-member board. This reduced the proportion of the company owned by employees to 25%, as well as reducing the employee representation on the board to the same proportion. Many employees may have believed that this had the effect of diluting employee influence at the board level. In fact, it was found that employees believed that the influence of the board actually dropped significantly between August 1979 and June 1980. Ironically, this occurred despite a desire by employee owners for increased influence by the board subsequent to employee purchase.

As a postscript, one notable event has occurred since the June 1980 evaluation. During the summer and fall of 1980 a large number of long-time employees and major shareholders left the firm. In interviews, several indicated that the main reason for this exodus was the feeling that management had "broken faith" with the employee owners by not living up to what the employees believed the spirit of employee ownership and the company should be. Many employee-owners who remain with the firm seem to feel bitter toward management, and this relationship shows little sign of improving.

SUMMARY AND CONCLUSIONS

Although employee ownership was successfully implemented and well received initially by employees and managers (probably due to the participative fashion in which the employee ownership plan was developed), the positive effects that had been predicted did not generally materialize. The overall pattern among non-managers during the two-year study period appeared to be relatively stable job attitudes for a time after employee purchase, followed by a general deterioration. While both shareholders and non-shareholders showed declines, the declines were often sharpest among the employee-owners. These declines took place despite a steady appreciation in the value of the company stock, which more that doubled in value during the eighteen-month period after employee purchase.

These findings are surprising, since in many ways this seemed to be an ideal setting for introduction of employee ownership. Productivity in this organization is directly related to human effort, and it is crucial to have loyal, committed employees who are willing to adjust to frequent organizational changes. It is relatively small, and had reasonably high employee morale before implementation of employee ownership. The work force was well-educated, and had a value orientation predisposed toward employee participation in ownership and decision making.

One possible explanation for this apparent lack of effect may be that the 25% share of the company now owned by employees is too small for employees to feel a real sense of ownership. Other studies have found employee ownership to be more successful the greater the proportion of the company owned by employees.[17] However, the chief explanation for the pattern of results found here is the failure of employee participation in decision making to increase in this period. According to many employees, a major reason for their support of employee ownership was the expectation of increased employee influence in company decisions. As the company had recently begun to expand rapidly, the close-knit organization in which employees had frequent informal inputs into decisions was disappearing, and many saw employee ownership and the accompanying participation mechanisms as one way of reversing this trend. Although employee influence was not generally perceived to have increased substantially in the first few months, employees appeared willing to adopt a "wait and see" attitude. Indeed, some individuals did believe that at least slight increases in employee influence had occurred, and a significant increase in personal participation in organizational policy decisions was perceived by shareholders. Ironically, this last variable seemed to be the least important aspect of participation in affecting key job attitudes.

However, as it became apparent to virtually all nonmanagers that real worker influence had not increased, negative attitudes toward management and the organization began to develop. Related to this, the perceived value of two of the main participation mechanisms--the employee council and the quarterly shareholder meetings--also declined sharply. However, it should be noted that although employees seemed very disillusioned about the usefulness of these mechanisms, virtually none were in favor of their abandonment, perhaps indicating a feeling that these mechanisms have the potential to be effective under the right circumstances. The group which may have had the highest expectations for change in PDM--non-managerial shareholders--demonstrated the greatest backlash. The two variables that dropped the most--trust in the organization, and perceived managerial fairness--were both directly related to managerial performance. This deteriorating management-employee relationship detracted from attitudes toward the organization as a whole.

A question of major interest is why employee influence did not increase, despite introduction of these participation mechanisms. Perhaps the most important factor that prevented these formal participation opportunities from being converted into actual influence lies with the attitudes and beliefs of the managers within the organization. While they did not differ from non-managers before employee ownership, and agreed that gaps existed between desirable and actual amounts of employee influence, by wave 2 they believed that these gaps had virtually disappeared. In other words, they seemed to believe that the formal participation mechanisms were sufficient to provide whatever employee participation was desirable, thus absolving them of any need to make changes in their personal managerial style. Thus, it is not surprising that they made little or no effort to increase employee involvement in decision making during the subsequent period.

On the other hand, for non-managers employee ownership heightened the importance of closing the gap between desired and actual influence, and they were looking for concrete instances where managerial decision making was altered to allow workers significant influence. Instead, it became increasingly apparent that managerial behaviour and decision-making processes had not changed significantly.

In retrospect, several steps should have been taken both to help managers understand the need for change and give them the ability to modify their behaviour. First, there were almost no middle or upper-level managers on the employee ownership task force. As a result, they were not exposed to the lengthy discussions which centred on the need for increased employee participation in decision making. Second, there were no training or education programs to help managers recognize the need for and give them the ability to obtain employee involvement in decision making. This may have been particularly important in this firm, since managers, though well-educated technically, generally have little management training or previous managerial experience. Although such a program was proposed by the consultant in early 1980, and this program was approved in principle, it was not carried out, due to protests from many managers that they were "too busy" to participate in such a program.

Several other factors may also have hindered employee participation. The first is that it became apparent that key members of top management viewed employee ownership and participation not as a philosophy, but as a program or plan. These individuals tended to see employee ownership not as an end in itself, but simply one step in the evolution of the company from government (university) ownership to conventional private sector corporate ownership. Second, middle managers tended to resist the new participation mechanisms because they felt left out of the process. As one middle manager put it: "The current arrangement leaves middle management at sea. We are not included on the employee council nor on the executive management committee". These feelings would not likely lead them to want to behave more participatively at their own level. Finally, management's reluctance to increase worker participation may stem from the increasing proportion of new and inexperienced personnel, and the declining proportion of employee-owners. As evidence of this, before employee purchase a majority of managers believed that increased employee participation at each decision level would result in better decisions being made, but only a minority believed so after employee purchase.

The experience of employee representatives on the board is noteworthy. In interviews, they indicated that they felt intimidated by the more-experienced board members. They also found that the board had traditionally exercised very loose supervision of management, and most board members wanted to continue this. Most employee directors felt that, in the first year, they had relatively little impact on major decisions, and that management frequently informed the board of its actions only after they had been implemented. For example, none of the employee-directors were made aware of the reorganization discussed earlier until after it had taken place. However, all three employee-directors were re-elected to a second term in spring of 1980, and they indicated that they would attempt to become more aggressive in dealing with management. Another problem reported by the employee- directors was that they had no systematic way of collecting input from employees on major issues, and were required by the board chairman to hold many issues "in confidence" in any case.

A number of implications can be drawn from this case. First, employee ownership will not necessarily result in the beneficial consequences claimed by its advocates. Second, employee participation in decision making may be a key factor in realizing positive effects from employee ownership and, indeed, preventing negative consequences from arising. Third, the simple implementation of a variety of formal participation mechanisms will not produce increased worker influence unless management is willing to bring them into the mainstream of organizational decision making. This requires a certain commitment and value orientation on the part of managers. Managers need to realize that employee participation in ownership and decision making cannot be regarded as simply a plan or a program, but as a philosophy of management. Finally, increased participation at the job and departmental decision levels, in addition to the organizational policy level, is needed to improve job attitudes. To achieve this, an effective managerial training and education program will almost certainly be necessary, and should be considered an integral part of the implementation of employee ownership.[18]

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TEAM MANAGEMENT

by

Lory Laing

ABSTRACT

The organization of autonomous work groups has been one of the features of work at Syncrude Canada Ltd. since the company became operational in 1976. Membership in small work teams became the basis of decision making in the organization, with the aim of achieving a participative style of management. It was hoped that the increased employee participation in company management would provide employees with more interesting and challenging work. This case describes the development of autonomous work teams at S.C.L. and highlights how the teams adjusted their shift schedule by implementing a 12-hour compressed shift schedule.

Syncrude Canada Ltd. (S.C.L.) is a large company involved in the extraction and processing of oil from the Athabasca tar sands in northeastern Alberta. The company employs over 4 000 people at its mine site, corporate offices and research facilities. At the S.C.L. Mildred Lake mine site, located 500 kilometres north of Edmonton, bitumen is extracted from the tar sand to produce synthetic crude oil. The principal facilities in this operation are mine, extraction, and upgrading plants, and a large integrated utilities plant.

The work and community environment of S.C.L. have important implications for the general quality of working life of its employees. The Mildred Lake project is an isolated worksite located 40 kilometres north of the city of Fort McMurray. The worksite itself, because of its size and location, is similar to an independent town. It has its own utilities plant, fuel storage, fire department, and medical department (including a doctor, several nurses, and a small infirmary). Most of the employees reside in Fort McMurray and are transported to and from the worksite by buses supplied by S.C.L.[1]

Much of the S.C.L. work force is imported, due to the demands of a large-scale operation for experienced, skilled employees. Almost a third of the mine employees had come to Fort McMurray from Ontario, and another third from the Altantic Provinces. Only a small proportion had come to Fort McMurray from elsewhere in Alberta. As a result, the S.C.L. work force has a somewhat "cosmopolitan" nature with no long-standing ties to Fort McMurray, or Alberta. This may have contributed to initially high turnover rates.

This case describes how semi-autonomous work groups[2] at Syncrude contributed to decision making in a remote community setting. It first describes the work and community setting and how team management emerged. It then illustrates how the teams became involved in implementing a 12-hour compressed shift schedule to respond to problems of turnover and lack of commitment to shift work.

S.C.L. is a continuous operation using a "hot-change" of personnel between shifts (i.e. men and equipment are continuously operating). At each shift change the crew going off work must remain until the incoming crew is in position. Given the size of the worksite, and the fact that there is a central dry area, the employees require 15 to 20 minutes after the scheduled end of their shift to pass on the controls and change out of their work clothes before boarding the buses for home.

The city of Fort McMurray has a rapidly growing population of approximately 30 000. Because of the rapid influx of employees and their families associated with the development of tar sand mining, the provision of adequate housing is a chronic problem. As a result, S.C.L. established Northward Housing Corporation to build, lease, and sell accommodation for S.C.L. employees when they are hired. Much of the housing is multiple-family dwellings, but employees are placed on a waiting list for single detached homes as they become available.[3]

The Northward corporation has also developed several facilities--swimming pools, playgrounds, and arts/crafts areas--in the multiple-housing complexes.

The employees work in a variety of jobs during the initial stages of the production of synthetic crude oil. The mine production employees use open-pit mining techniques with specialized equipment. The mine area will eventually cover 26 square miles. Large draglines (machines carrying 61-cubic-metre buckets) are used to remove the overburden and to mine the tar sand. The overburden is later returned to the pit. The tar sand is deposited in a windrow behind each dragline. Bucket-wheel reclaimers then move the material from the windrow onto a conveyor system. Each dragline has its own reclaimer (which is 20 metres high and over 120 metres long). A series of electrically powered conveyor belts then move the tar sand from the mine to the extraction plant at the rate of 6400 tonnes per hour. Once the mined tar sand is delivered to the extraction plant, the bitumen is separated from the tar sand by a hot water extraction process. The bitumen, in the form of froth, is then centrifuged in a froth treatment plant to remove the bulk of the water and solids. The extractors discharge the solids, which are allowed to settle in a tailings disposal area. The water used is reclaimed for recycling to the operating plant. The tailings will be returned to the mine pit as part of the reclamation process.

The employees in the mine production and mine maintenance departments represent a wide range of activities and skills. Within each job category, employees are differentiated by a designation of seniority ("technician level"). There are four levels--trainee, and technician I, II, and III. An individual advances from one level to the next by acquiring new skills. Systems of job rotation and the maintenance/training shift encourage employees to acquire new skills. Job rotation or cross-crafting requires employees to do jobs outside their particular trade as a result of the practice of operator maintenance of equipment and work areas. A five-day "maintenance week" is included in each shift cycle, at which time employees are relieved of their regular duties in order to carry out routine maintenance jobs. It is also possible for the employees to take additional training during a maintenance week. S.C.L. has a training department which offers courses in a variety of trades, some of which are accredited with the Alberta Apprenticeship Board. Employees can pursue further training in their existing trade area, or acquire alternate trade skills (e.g. a qualified electrician can take a welding course).

Despite the differentiation of tasks within and between the two mine departments, there is a strong sense of association with "the mine", as opposed to "extraction" or "upgrading". The miners recognize their role in setting and maintaining the pace of production for the other departments. They also take considerable pride in the size of the mine and the equipment they operate or maintain. At the same time, there is a recognized differentiation between the production and maintenance departments. A large part of this difference is due to a larger proportion of the maintenance employees being skilled tradesmen, and there is an obvious difference in job functions.

THE TEAM MANAGEMENT CONCEPT

Team management refers to a general approach to operating a manufacturing or processing plant. Employees are grouped into teams based upon:

1. The kind of work being done in a particular area of the operation; and

2. The kinds of individual skills required in the area.

Under team management, employees are given more responsibility than in traditional organizations. Teams are responsible for all the work in their area, including many management activities. The intent of team management is to create a work climate where employees have the needed information on finances, economics, and performance, so they can help plan the work of the unit, suggest changes to improve productivity, identify training requirements etc.

The employees also have more flexibility in the kind of work they do through the system of operator maintenance and cross-crafting. The S.C.L. compensation policy rewards the acquisition of new skills and/or the performance of different functions. Employees are paid for what they know and what they do, rather than just what they do.

Within this context, the role of the manager/supervisor changes to that of a coach, trainer, and consultant to the team. He or she is a resource to be used by the team in helping them to manage their work. Supervisors/managers are largely responsible for the information that teams receive from, and give to, other parts of the organization. Communication is facilitated by monthly team meetings. Concerns, requests, and suggestions discussed at team meetings are disseminated through the minutes of the meeting, the employee relations representative in attendance, subsequent team-to-team memos, or subsequent supervisory sessions (equivalent to team meetings). The minutes of all team meetings are brought to the operating managers' weekly meetings for discussion. In turn, the S.C.L. executive has weekly team meetings where requests or suggestions may be discussed. The executive team meetings frequently draw in staff people for information or questions.

The objectives of this management style are improvements in:

1. Organizational effectiveness, through such things as a smaller work force with fewer levels of supervision and less indirect staff and support personnel; and substantially more problem solving at the operator or first level coupled with significantly less firefighting by managers. This, in turn, gives managers more time for analysis, planning, and implementing long-term objectives.

2. Employee productivity, through such things as lower turnover, an enthusiastic work force, and more individual responsibility.

3. The individual's quality of work experience, through increased participation, understanding, pride, and opportunity for learning.

The basic rationale behind the team management approach is that employees who are given the responsibility of managing will be as committed as managers. This increased commitment can only result in increased productivity. People's jobs are made more interesting and challenging. When employees feel their work is meaningful, they are more constructive.

Emergence of Team Management at S.C.L.

The use of team management is unique for a company of this size. The entire company is arranged in autonomous teams of employees. Teams consist of individuals with closely related job functions, similar to a traditional work group involved in integrated tasks, but also include individuals who share a broader production objective. The teams vary in size depending on the number of employees associated with specific operational objectives. The average team consists of 8 to 12 employees. Teams meet at regular intervals to receive, discuss, and give information. The members of each team are encouraged to participate in discussions and decision making with respect to issues affecting their specific jobs, department activities, and overall company policy. As a result, employees are encouraged to view themselves and their jobs in relation to the production and profit goals of the company as a whole.

The team management concept was originally encouraged at S.C.L. by the President and Chief Executive Officer. S.C.L. had to attract and maintain a large, skilled work force. In the mid-70s unemployment was almost nil in Alberta, and low elsewhere in Canada. Due to the size of S.C.L. manpower requirements, the need could not be met without national recruitment. Attracting employees to an isolated worksite and a rapidly growing community, with attendant housing and recreational supply problems, can be difficult. At the same time, the technology used in oil sands extraction and synthetic oil production was relatively new. The costs of producing the oil were high in comparison with conventional oil production, so it was imperative to minimize production costs.

A group of S.C.L. executives studied a number of sociotechnical systems operating in Canada and the United States. This group was particularly impressed with the Dofasco plant in Hamilton, Ontario, the Shell Chemical Plant in Sarnia, Ontario, and the Esso Resources gas plant at Redwater, Alberta. From this experience, the S.C.L. executives concluded that it was possible and desirable to develop a work environment in which all employees (occupational, technical, and professional) were treated uniformly. All would share the same benefits such as sick leave, vacation, housing and savings plans, and there would be no time clock to punch. Of course, pay scales were commensurate with education and experience, and some of the benefits were prorated with salary. Moreover, the organizational concept of team management offered the opportunity for management and employees to work directly together to create a satisfying, productive work environment.

The initial concentration of effort was in setting up the teams from an operating point of view. At this stage, it was decided to include a fifth shift (maintenance shift) in the operations teams' cycles. Operator maintenance allows employees to become aware of potential maintenance problems early, and to develop new skills. The employees develop their abilities through actual maintenance activities or through formal training programs available during their maintenance week. Using operators for maintenance is also meant to reduce costs.

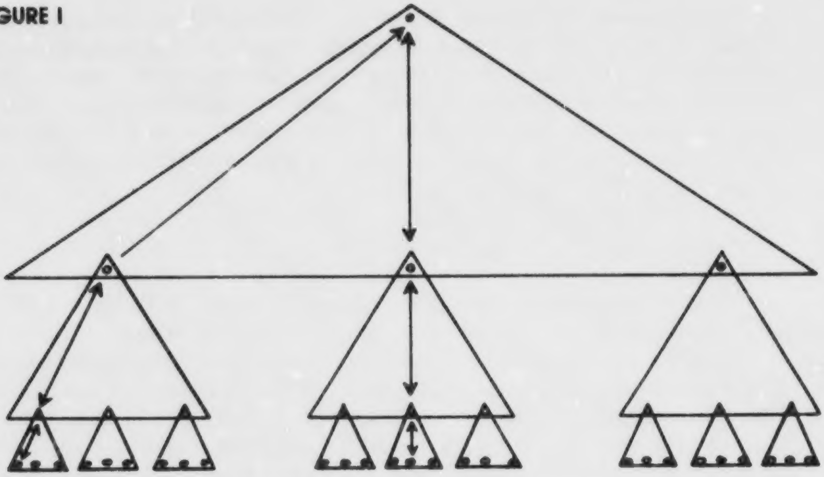
Implementation of Team Management

The implementation of team management requires that all employees be divided into functional areas (such as maintenance, mining, administration, etc.). Within each functional area, employees are then divided according to the tasks they perform as well as their production objectives. Those with similar tasks and goals form a team of about 8 to 12 individuals. If there are many employees involved in the same tasks and goals, additional factors such as shift or physical location are also considered in team formation.

All employees belong to at least one team, but some employees have duties related to many functional areas. As a result, some employees "float" on several teams. This is particularly true for senior management. For example, operating managers are ostensibly members of several teams within their functional area, as are members of the corporate management team. Other employees involved in areas such as labour relations and employee relations are also apt to be members of several teams. The supervisor is the team leader. Because the supervisors also belong to their own team (or teams) all levels of employees are "linked" to a larger team. (See Figure I).

Effective participation in teams requires changes in traditional attitudes, work assignments and responsibilities on the part of both employees and management. Employees are encouraged to take greater responsibility for their own actions and decisions they are involved in. This requires self-motivation, the ability to influence and be influenced by others, and a cooperative attitude. Team management, although it focusses on shared responsibilities (for both successes and failures), is not designed for mediocrity. Instead, the idea is that other team members

FIGURE I



will assist a team member in bringing his or her performance up to a higher level. This idea of group responsibility for fellow employees is a sharp departure from the traditional "every man for himself" attitude.

Each work team sets up its own production objectives. This is accomplished by a form of team management by objectives. First, the team identifies key result areas, or output areas, then a series of goals or specific results in order to achieve the general objective. For example, a particular S.C.L. mine team could identify production scheduling as a key result area (KRA), then specify more detailed goals in terms of the amount of overburden or tar sand to be moved by particular dates. A more detailed action plan is then set out indicating the specific steps to be taken to achieve this goal, when, by whom, potential problems, and expected date of completion. Another KRA for this same team might be safety and loss control, which would involve goals like "no accidents" and "a clean worksite". Work teams monitor their own progress in achieving goals associated with each KRA. On an annual basis, each team is accountable for their KRAs to the appropriate functional vice-president and associated managers.

Within this management system, all employees are accountable on two levels: what is achieved (in terms of

KRAs); and how it is achieved. The latter represents an evolution of team management since its inception at S.C.L. Among the factors evaluated in this process are whether the employee is willing to share knowledge and help others; accepts team rules; builds team spirit and has a commitment to his or her team; accepts or turns over the team leadership role when appropriate; recognizes the need to keep team members informed; and confronts and works on team interface problems.

To assist employees in operating in a team environment, S.C.L. has an Organizational Effectiveness Division (OED). The OED is responsible for immersing new employees in the team style as they are hired. All newly hired or promoted managers, supervisors, and professional staff are given a one-week off-site training course entitled "Managing-in-Sync." All operating personnel are given a three-day short-course. During these courses, and others periodically put on by the OED) as refreshers, employees are instructed in the principles, goals, and mechanics of team management. For some individuals participation in this system is difficult. Some people used to a traditional, authoritarian management setting find it hard to adjust to being a "coach", thinking of others, or setting goals as a group.

When S.C.L. first implemented its team management concept, a procedure for handling grievances or concerns had to be set up, because the company has no collective agreement with its employees. The system developed has employees raise their concerns with their supervisor. However, if the employee and supervisor cannot resolve the problem, the employee may appeal directly to higher levels of management. As a result of this process, and from concerns raised at regular team meetings, employees participate in making changes in their work or environment. For example, an employee's complaint about sexual harassment was discussed at several team meetings (including the complainant's team, the labour relations team, and the managers' team). As a result of these discussions, an employee task force was formed of interested individuals from several functional areas. The task force investigated the general problem of sexual harassment on the worksite, then prepared a position paper based on their findings. The position paper was discussed by management teams before an employee concerns committee was formed to carry out the task force's recommendations (among which were to remove all nude posters from work areas, and to take steps to alter attitudes to and promote greater understanding of sexual harassment).

TEAM MANAGEMENT'S ROLE IN GETTING ACCEPTANCE OF AND IMPLEMENTING A COMPRESSED SHIFT SCHEDULE

Turnover and lack of commitment to shift work were still problems at Syncrude. There was an annual turnover rate of 50%.

The S.C.L. mine employees were young, largely inexperienced with shift work, and new to team management. Most of the employees had not come to S.C.L. from traditional coal or metal mining backgrounds where shift work is common. The employees had not made a long-term adaptation to rotating hours, and were initially unwilling to make a long-term commitment to such hours.

Virtually any aspect of working conditions is open to discussion at team meetings. If members of a team have ideas about changes and improvements, they are able to implement them (with the proviso that such changes not disrupt other operations or team functions). In responding to the problems of turnover and lack of commitment to shift work, the teams investigated the benefits of a 12-hour compressed shift system.

Some of the indoor personnel in the extraction and upgrading plants became interested in working a compressed shift schedule in 1977. At that time, compressed shift schedules were relatively rare, but several petrochemical processing plants in Alberta had converted to 12-hour compressed shift schedules. The benefits of the new shift schedule were touted as:

1. More days off to spend with families.

2. Approximately 15 hours per month saved in travelling time.

3. A compressed shift schedule allows better planning of leisure time, whereas eight-hour shifts provide inadequate time to plan and complete outside activities.

4. A better distribution and planning of overtime (i.e., employees plan overtime for days off instead of extending their normal working hours unexpectedly).

5. More job continuity because of two shifts per day instead of three, which results in more job satisfaction.

Interest in modifying the shift schedule grew as the benefits and disadvantages of a compressed schedule were discussed at team meetings of extraction and upgrading workers. Through further discussions at supervisors' and managers' team meetings, the idea of implementing a compressed shift schedule on a trial basis was approved by S.C.L. management. Then administration, employee relations, and labour relations teams were requested to work out the implications of changing shift schedules. Accompanying changes to overtime coverage, transportation, and integration with other functional areas were discussed in detail. When the feasibility of a compressed shift schedule had been determined, a specific 12-hour compressed shift proposal was presented to the upgrading employees. This proposal was accepted by all of the operating teams in the upgrading department. Shortly thereafter, the extraction plant teams also had their proposal for a compressed shift schedule finalized. The next step was to gain the necessary approval from the Alberta Board of Labour Relations and Division of Occupational Health and Safety. At that time, government approval was required for any shift schedule which was longer than eight hours per day. Government approval for a 12-month trial period was granted to both S.C.L. departments, with the shift change being made in upgrading in June 1977, and in extraction in January 1978.

Although extraction adopted the 12-hour compressed shift schedule on January 1, 1978, the extraction plant did not go into an operating production mode until March, 1978. The intervening period was used for operating/production training and build-up of staff. At the conclusion of the 12-month trial period, in December 1978, the Alberta Board of Labour Relations directed S.C.L. to review the compressed shift schedule with their employees before granting an extension to the government approval. Extraction management authorized the employees to form their own committee to devise and select a number of alternative schedules (including eight-hour shifts), and to present their alternatives to the employee body for a majority vote. Again, the employees chose to continue a 12-hour compressed shift schedule. During this internal evaluation process the compressed shift schedule was shown to have had no adverse effects on absenteeism, turnover, or employee transfers.

It was not long before interest in the compressed shift schedule had spread to the mine departments. As soon as the upgrading department adopted the 12-hour shift, word was passed amongst employees of the benefits of the shift change. Shift schedules were copied, distributed, and discussed at team meetings. In June 1978, S.C.L. management conducted a department-wide preference vote which included all mine operations and mine maintenance employees. The results of the vote confirmed earlier informal pools which indicated a large majority of the employees were sincere in their request for a changed work schedule. In fact, 94% of the mine operations personnel and 72% of the mine maintenance personnel voted in favour of the change.

However, S.C.L. encountered some reluctance on the part of government authorities to approve the shift change because a large proportion of the mine employees are engaged in strenuous physical labour and are exposed to occasionally adverse weather conditions. Previous experiences with compressed shift schedules had been for the most part restricted to indoor workers. An initial application by S.C.L. management for a shift change in the mine departments was denied by the Board of Labour

Relations. As a result, it was necessary for representatives of S.C.L. management, mine operations and maintenance teams, and employee and labour relations teams to reformulate a joint proposal which incorporated an external (to S.C.L.) evaluation component. A formal presentation was made by this group and approved by government for a 12-month trial period commencing in May 1979. The reformulated proposal included an analysis by the operating teams of their job descriptions, field duties, equipment support, safety on the job, and reasons why their teams wanted a 12-hour compressed shift schedule. The external evaluation component of the trial permit included a self-report questionnaire administered to a sample of mine employees, and a review of employee information system data for specified work/performance variables (turnover, absenteeism, and accident/injury frequencies). The change from an eight-hour rotating shift schedule to the 12-hour compressed shift schedule was made in April 1979.

The employees work the same average number of hours per week (41.6 hours) on the 12-hour shift as on the eight-hour shift, but the 12- shift concentrates hours of work on fewer days. The respective shift configurations are shown in Table I.

The important differences between the two shift configurations are that the 12-hour compressed shift schedule

- provides three weekends off instead of two;
- involves seven night shifts, the same as on the eight-hour shift, but in a series of four and three shifts rather than seven in a row;
- eliminates the afternoon shift entirely;
- provides a "long break" of six days rather than four;

The mine employees were studied from April 1979 to May 1980 to determine the effects of the shift change on the following psycho-physiological and psycho-social factors associated with quality of working life: fatigue, physical habits (eating, sleeping, smoking, drinking), exposure to hazards of the work environment, employee errors, attitudes to shift work, attitudes to one's job, and participation in family/leisure activities.

Impact of the Compressed Shift Schedule

The effectiveness of the team management system was enhanced by the compressed shift schedule in that it eliminated the third shift crew in each 24-hour period. As a result, each work team relieves, and is relieved by, the same team (except when going into days off). Under these circumstances the potential exists for improved relationships between work teams performing the same tasks. The employees feel a greater sense of responsibility to leave the workplace in good order, knowing that their actions have a strong chance of being reciprocated. A greater dependency develops between alternating teams. There is also no third shift upon whom mistakes, inactivity and disorder can be blamed.

With the S.C.L. mine employees operating on a "hot change" of personnel, there is considerable pressure to pass on relevant information and the equipment to the incoming team without interruption. Having just two shift changes each day made the employees feel they had more time to properly brief their counterparts when they were exchanging controls. As a result, the clean-up and job takeover went more smoothly. Supervisors and employees were aware that they spent less time in shift reorientation over the long term (by having to do it just twice a day). An added benefit for supervisors was that because they spent less time initiating or organizing activities at the start of shifts, they had more time per shift to spend with individual employees. This enhanced their role as coach, trainer, and consultant within the team concept. It naturally reduced confusion and work interruptions.

Organizational effectiveness was further enhanced by improved communication with cross-shifts in other depart ments that were on a 12-hour compressed shift schedule already. The shift schedules in the mine coincided, for the most part, with those in extraction and upgrading.

TABLE I

1. Eight-hour shift schedule — 35-day cycle

shifts off: 9

shifts worked: 26

times: N night shift, 12 midnight - 8:00 a.m.
D day shift, 8:00 a.m. - 4:00 p.m.
A afternoon shift, 4:00 p.m. - 12 midnight
M maintenance/training shift, 8:00 a.m. - 4:30 p.m.
X shift off

Shift configuration:

Week # 1	**Week # 2**	**Week # 3**	**Week # 4**	**Week # 5**
MTWTFSS	MTWTFSS	MTWTFSS	MTWTFSS	MTWTFSS
MMMMMXX	XXDDDDD	DDXAAAA	AAAXXNN	NNNNNXX

2. Twelve-hour shift schedule — 35-day cycle

shifts off: 16

shifts worked: 19

times: N night shift, 8:00 p.m. - 8:00 a.m.
D day shift, 8:00 a.m. - 8:00 p.m.
M maintenance/training shift, 8:00 a.m. - 4:30 p.m.
X shift off

Shift configuration:

Week # 1	**Week # 2**	**Week # 3**	**Week # 4**	**Week # 5**
MTWTFSS	MTWTFSS	MTWTFSS	MTWTFSS	MTWTFSS
MMMMMXX	XXXXNNN	NXXXDDD	XNNNXXX	DDDDXXX

Teams in one functional area had a greater opportunity to know and trust their coincident teams in another functional area.

The extra four hours of each shift also gave employees greater opportunity to complete a task during a single shift than was possible in an eight-hour shift. As a result, there was less confusion associated with handing over uncompleted tasks to another crew at a shift change. This extra time per shift encouraged problem solving at the operator level because an individual had more time to identify, investigate, and deal with problems.

However, the nature of the shift cycle required some extra effort on the part of supervisors to assure a smooth operation. Having a five-day maintenance week preceding the six-day long break meant the employees were away from their regular jobs for 11 days each shift cycle. This resulted in some loss of continuity and awareness of current developments. The supervisors therefore had a greater need for information about current developments. The regular supervisor team meetings were not useful in this regard because each supervisor needed the information at the conclusion of each of their long breaks. Some even found it difficult to return after 11 days onto a night shift because there could be significant physical changes in the mine itself which were difficult to see in the darkness.

Productivity is difficult to measure, but turnover, absenteeism, and accident figures all showed improvement for the first 12 months on the compressed shift schedule. Of equal importance is the fact that employees' ratings of their personal work performance improved significantly. They found greater satisfaction from being able to complete tasks during a 12-hour shift, as well as being better able to plan their work. This increased their sense of responsibility for all work in their area, which is consistent with the team management concept. They took great satisfaction in having introduced an innovation (the shift change) which resulted in improved individual and group performance.

Changing hours of work did not affect the nature of the work done by the employees. At the same time, the extra four hours of work per day did not aggravate potential problems of boredom, pressure or tension that may already have existed. Individual work teams altered the timing and sequencing of lunch/coffee breaks to accommodate their personal and work needs. As a result, there was considerable variation in break patterns between teams. The employees also were able to take advantage of skills acquired as a result of job rotation. For example, to avoid possible problems of inattentiveness due to repetition and boredom, dragline operators were rotated off their machines to another task after eight hours. In other cases, the employees simply timed their breaks for every two to three hours.

In light of the employees' ability to better adapt the compressed shift schedule to their off-work activities, it is not surprising that their attitude toward shift work improved. It is also understandable that they were willing to commit themselves to shift work over the long term. This social-psychological adaptation to the shift schedule was further enhanced by psycho-physiological adaptations.

IMPLICATIONS

The S.C.L. experience with team management demonstrates that this system of participative management can operate in a large, complex work environment. The result is a productive, satisfied work force. The institution of a 12-hour compressed shift schedule had virtually no effect on the employees' morale, despite the fact that the shift change was an improvement that they initiated themselves. Morale was already very high amongst the employees because of the high levels of responsibility and flexibility afforded by team management.

At the same time, the compressed shift schedule had no adverse effects on team decision making. The employees did not substantially increase their non-work orientation. In fact, the employees reported spending less time at work planning family or leisure activities because they had sufficient non-work hours in which to both plan and complete activities. The longer day at work increased their involvement in the planning and execution of their tasks. The increased number of leisure days similarly increased their involvement in family or recreational pursuits.

The compressed shift schedule had a positive effect on inter-team communications, primarily by reducing the number of teams in each functional area. The team management approach requires people to have the proper information in order to manage themselves and their work effectively. Having just two shifts per day improved informal communication, without affecting formal communication mechanisms such as team meetings, written communications, or special committees.

Observing team management at work in the implementation of the compressed shift schedule, we see that this approach requires patience and time to arrive at some degree of consensus. Teams involve all employees to a greater degree than traditional management. This can make decision making a little slow. However, the benefits of a committed, responsible work force make the extra time and effort worthwhile. It must also be noted that under team management some executive decisions are still made by senior management, in consultation with employee teams. It is not necessary to involve the entire work force in all decisions. However, once these decisions are made, all affected teams have the opportunity to work out the means for implementing the decision.

NOTES

[1] A small percentage of new and/or unmarried employees reside in a work camp facility located near the mine site. Most of these employees relocate to the city when they find appropriate accommodation there.

[2] The terms semi-autonomous work groups and teams are used interchangeably.

[3] The cost of all Northward accommodations is subsidized by S.C.L. Most of the employees are happy with their housing arrangement because Northward offers a variety of housing styles.

[4] S.C.L. employs a technician concept that includes job rotation, cross-training, maintenance by operators, and progression system. As a result, one five-day period per shift cycle is devoted to maintenance and/or training.

JOINT DEVELOPMENT OF COMMUNITY AND WORK LIFE

by

Bert Painter, Alexander Lockhart,

and

Jon Spalding

ABSTRACT

Many employers in outlying regions know that the quality of life in the community materially affects labour stability and other factors in economic viability. However, employers often do not see a way to have influence in the community without being perceived as acting in a paternalistic fashion. Similarly, employees and trade unions would like to see improvement in community life, but they seldom have an organizational base to bring about this change. The Skeena Manpower Development Committee in northwestern British Columbia is one example of a labour-management process dealing with community issues. Formed in 1975 in response to a critical problem of high labour turnover in several resource communities, the Skeena Manpower Development Committee is a voluntary organization linking an association of several large employers and a caucus of public and private sector unions. The problems as well as the achievements of the Skeena Manpower Development project provide an example of how a structure and a process of labour-management collaboration can contribute to both economic viability and social well-being in remote communities.

INTRODUCTION

Northwestern British Columbia is typical of the northern Canadian resource frontier. It is a vast territory (over one million square kilometres) with a small, scattered population (75 000 persons).[1] The communities within this area exist in relative isolation from one another and from southern centres. Communities range in size from bunkhouse camps at mine sites to regional centres of approximately 18 000 people. Most are single-industry towns. The entire area is economically dependent upon a resource-based economy of mining, smelting, fishing, and forestry.

Dissatisfaction with the quality of life in these communities had been voiced throughout the 1960s and 1970s. In response, the various levels of government initiated a number of studies and planning exercises, but, unfortunately, with little visible impact except that the residents perceived themselves to be "studied to death". Governments were equally frustrated by their inability to influence developments. Organized labour expressed its dissatisfaction with the quality of community and work life through often long and bitter strikes. Individual employees indicated their dissatisfaction by extraordinarily high rates of labour turnover, as high as 200% annually in some locations.[2]

The failure of single-handed government or industry action to hold back the tide of labour and community instability gave rise to a joint labour-management organization known as the Skeena Manpower Development Committee (SMDC). This joint initiative provides an example of how communities and work organizations can deal with critical labour supply problems which commonly afflict remote resource development. More important, the Skeena Manpower Development Committee represents a vanguard attempt to meet a growing requirement that industries, no less than individuals, come to terms with their social and economic environments.

The following report examines the main events and conditions that have shaped the development of the Skeena Manpower Development Committee. The report also aims to identify within the Skeena experience the inhibiting and promoting factors that other communities and industries might encounter if they were to undertake a similar initiative.

FORMATION OF THE SKEENA MANPOWER DEVELOPMENT COMMITTEE

In 1975, companies within the Skeena region began seeking solutions to the high rates of turnover. At the same time, instances of companies "pirating" employees from each other were observed. One company's boom was another's bust. Labour turnover was obviously a problem that no one company could solve on its own. The largest employer in the region proposed that an association of employers be formed to collaborate on manpower planning and training programs. After discussion with the federal Manpower Department, the employers decided to ask organized labour to become involved.

Fieldworkers from the Canada Manpower Department were instrumental in arranging the first meeting between senior operating personnel and representatives of organized labour in the Skeena Manpower Area. The meeting developed in the spirit of local industrial relations. It was long, boisterous, and bitter. Allegations and recriminations were hurled about. The participants did, however, agree to another meeting, which was a surprising accomplishment in itself.

At a second meeting on October 5, 1976, there was a consensus that an interim committee consisting of five representatives from each of labour and management, and a Canada Manpower fieldworker, would be given six weeks to develop a strategy and appoint a chairman. On November 30, 1976, the Skeena Manpower Development Committee was formed, with a former personnel director from the region as chairman, and a steering group composed of three representatives from a labour caucus and three representatives from the new employers' association. The employers' association also acted as the agency through which corporate fiscal contributions were made to the Skeena Manpower Development Committee (SMDC). Matching financial support was made on behalf of the union caucus by the provincial Ministry of Labour. This joint employers-provincial funding was equaled by a further grant from Canada Manpower Consultative Services.

The basic purpose of the Skeena Manpower Development Committee was apparent from the outset--development of labour stability. And from the beginning, the committee's concept of labour stability has extended beyond the requirements of industry, to include consideration of the needs of workers and of the community as a whole.3 Such a broad objective engendered unrealistic expectations on the part of some in government and management who envisioned the committee as the answer and the cure to industrial disputes, and it created scepticism on the part of others, particularly some local residents who viewed the committee as yet another noble experiment doomed to failure. The continued life of the committee, however, has disproved both the overly romantic and the pessimistic predictions.

A fundamental issue associated with the committee's broad objective has been its concern with underlying problems of economic imbalances and institutional underdevelopment that characterize the regional socioeconomy as a whole. These demand a broader economic planning and community development focus than is typically practised by industrial actors (both union and management). Such an environmental approach that goes beyond the industrial base itself was bound to produce both scepticism and tension among organizational traditionalists. For those managers who prefer the more certain one-dimensional production model where goals are narrowly defined and performance incrementally measured, the committee's broader mandate must inevitably lack credibility. On the other hand, for those unionists whose commitment to the industrial conflict model is so complete that any association with management outside of the formal industrial relations format is viewed as co-optive, the committee is perceived as almost too dangerously credible.

Thus, ironically, the real potential and the equally real vulnerability of the committee has derived from the same source, namely, the cooperative and integrative approach to problem identification and solution. To the extent that the committee makes progress towards its goals, it does so at the risk of confronting the established values, styles and assumptions of the traditional organizations upon which the committee has been wholly dependent for creative energy. The committee was constantly seeking support and fending off the forces of repudiation or assimilation.

Such are the problems faced by innovative voluntary associations whose power base is limited to reasoned argument and moral persuasion, within those realms where management, union, and public share a common concern. The committee has dealt with this political dilemma by emphasizing its role as a catalyst in developing greater understanding, within the region, of the factors affecting labour stability, and in facilitating coordinated solutions implemented by others--the employers, trade unions, and institutions of government in the Skeena Manpower Area. Nevertheless, the catalyst role has not seemed entirely satisfying or sufficient to either the committee or its sponsors and, therefore, the definition of a unique jurisdiction for the committee has been a matter of continuous debate during the life of the SMDC.

During its first half-year, the committee conducted a public search for direction and for ways to deal with the "mess" of problems underlying labour turnover. The members of the committee met with and received briefs from over sixty groups in the Skeena Manpower Area.[4] A conference of all transportation companies operating in northern British Columbia was convened to discuss scheduling and delivery of services. Consultants were asked to help the committee design a research program. What emerged was a strategy for gaining a better understanding of the shape and magnitude of the instability problem, while identifying situations and issues appropriate for follow-up actions that would attempt to demonstrate the possibility of change.

Before the actual research phase commenced, the membership of the committee was expanded to include regional government representatives, in an "associate", non-voting capacity. The rationale for something less than full status for government was a technicality in the federal-provincial funding procedures. However, the associate status also reflected some ambivalence by labour and management about the involvement of government in this program. Clearly government agencies were key actors in the region. Many would say they were a big part of the problem. Nevertheless, a tripartite (labour-management-government) approach was unacceptable to both the employers and organized labour in the region. "Associate" status was also viewed as largely unacceptable by representatives of government. This foreshadowed a later change in attitude towards the committee. Whereas regional governments had originally seen the committee as one way to increase their leverage vis-à-vis federal and provincial levels of government, they would come to question their role on a committee which they felt ignored certain priorities, and instead attempted to take action in other areas that governments perceived to be within their own exclusive jurisdiction.

DEVELOPING AN UNDERSTANDING OF LABOUR INSTABILITY

In the spring of 1977, a caucus of six unions and an employers' association of nine companies approved the committee's research program, which focussed on three specific issues: manpower training, professional services, and transportation.

A cost of living assessment was also prepared for purposes of comparison with provincial and national consumer price indexes. The most thorough investigation was a detailed analysis of labour turnover within a large sample of industries and a majority of the larger communities in the region. Trained researchers were hired to conduct most of this work, while the committee continued to hear representations from concerned individuals and groups at regular monthly meetings. The committee also organized a union-management conference to study new initiatives and existing government legislation in the field of labour relations.

By the end of its first year, in late 1977, the Skeena Manpower Development Committee published a report on labour instability in Northwestern British Columbia.[5] The report provided a profile and history of organizational and community turnover. The data was significant both for its confirmation of the high level of turnover in the region, and for its indication that some organizations and communities had noticeably lower rates of turnover than others. For the first time employers, labour unions, and government decision makers had accurate information regarding some indicators of the quality of working and community life. This allowed the committee to begin defining areas in which action might be taken.

Above all else, the research increased the general level of awareness about the phenomena of labour and community instability. No longer was the region seen as unique or alone in its problems. What the research produced was the characteristic portrait of settlement in Northern Canada: poor transportation, poor services, poor recreational facilities, sometimes dismal climatic conditions, strained labour relations, less than adequate educational facilities and, of course, cyclical unemployment.

The "boom-bust" economy resulted in the periodic layoff of a large percentage of the work force. There was also the need for many workers and their families to make a wholesale move out of the area in order to find alternative employment. In the other phase of the cycle, boom periods have necessitated constant and costly recruitment of workers from great distances outside the region. Compounding the turnover rate has been the "short-stint" orientation of many of these newcomers. Professional, managerial, and hourly-paid workers have often come to the area with a predetermined and finite time commitment of three to five years. Many persons appear to have then left the area without knowing why, except that their "time was up" in a community which they may never have intended to join completely.

Turnover may not have been perceived as a problem by many people who have come to the region either for short-term financial gain or for experience and fast promotion. Many tradespeople, most professionals and a good many management personnel have regarded the region as a training ground. However, at the time of the

Skeena manpower studies, educational facilities to support professional development or vocational training were comparatively limited. Indeed, it was reported that most people who were new to the area found the social services and recreational facilities inadequate compared to what they were accustomed to. If the quality of work life was poor, there was, therefore, little in the community to serve as an incentive for staying on the job.

The lack of social amenities affected spouses and young people even more severely because of their limited employment opportunities. The people who felt most left out were those indigenous to the area, particularly native people whose employment has actually decreased as industrial development has increased in the region.

Overall, people in the region experienced a sense of isolation. This was partly a result of geography but, more importantly, there was a psychological distance from the centres of corporate and governmental decision making in the south. The Skeena Manpower studies revealed publicly what was widely held privately: a psychological stigma attached to anyone living in such a "disadvantaged" or "isolated" region. This was truly the "Catch-22" of community development in the area: to complain about the poor quality of resources only served to reinforce the negative image that others held of the Skeena Manpower Area.

One way out of the dilemma was provided by the process of the Skeena Manpower Committee. The collaboration of unions and employers brought together two of the most powerful forces in the region. All levels of government focussed attention on the committee. It was a sign that the unique composition of the Skeena Manpower Committee could give it the strength to influence government policy in a way that the region had never experienced before. In concluding its diagnostic phase, the committee issued the following statement about its role:

> The various levels of government have recognized our abilities to such an extent that they have written and asked for our continued existence and assistance. We must stop waiting for a nebulous

"them" to look after our interests, and take a leadership role in looking after our common interests for ourselves.

IMPROVING CONDITIONS IN THE COMMUNITY

The diagnostic report gave credibility to the committee as an organization that could get a job done. It established the committee's ability as a catalyst that could mobilize public opinion in a diverse and widespread region. Provincial and federal governments were persuaded to increase their funding of the Skeena Manpower Development Committee. This enabled the hiring of a full-time staff coordinator. A new committee chairman was also recruited--this time, a senior labour representative.

The build-up of the committee's resources was intended to assist the transition from reflection into an action phase. The strategy chosen by the committee was to focus initially upon improving those conditions in the community that the diagnosis found to be unsatisfactory and causing labour turnover in these workplaces. Many of the local factors were, in turn, found to reflect policies established outside the region (Figure I). The early activities of the committee were concerned with advising on the need for and attempts to influence the supply of public services, including educational facilities, within the region. The committee began, therefore, to make its mark as a unique "lobby" that could unite a wide range of constituencies (e.g., private sector employers, local school districts, colleges, hospitals, unions, Indian bands) to provide strong representation of regional interests within provincial and national affairs (Figure II).

In return, the Skeena Manpower Development Committee provided a labour-management "pulse" that would be a useful point of contact for provincial and federal governments.

The Skeena Manpower Development Committee became an unofficial advisory body to groups such as the Occupational Training Council of the province, the

FIGURE I

THE DIAGNOSIS GUIDING THE INITIAL ACTION PHASE

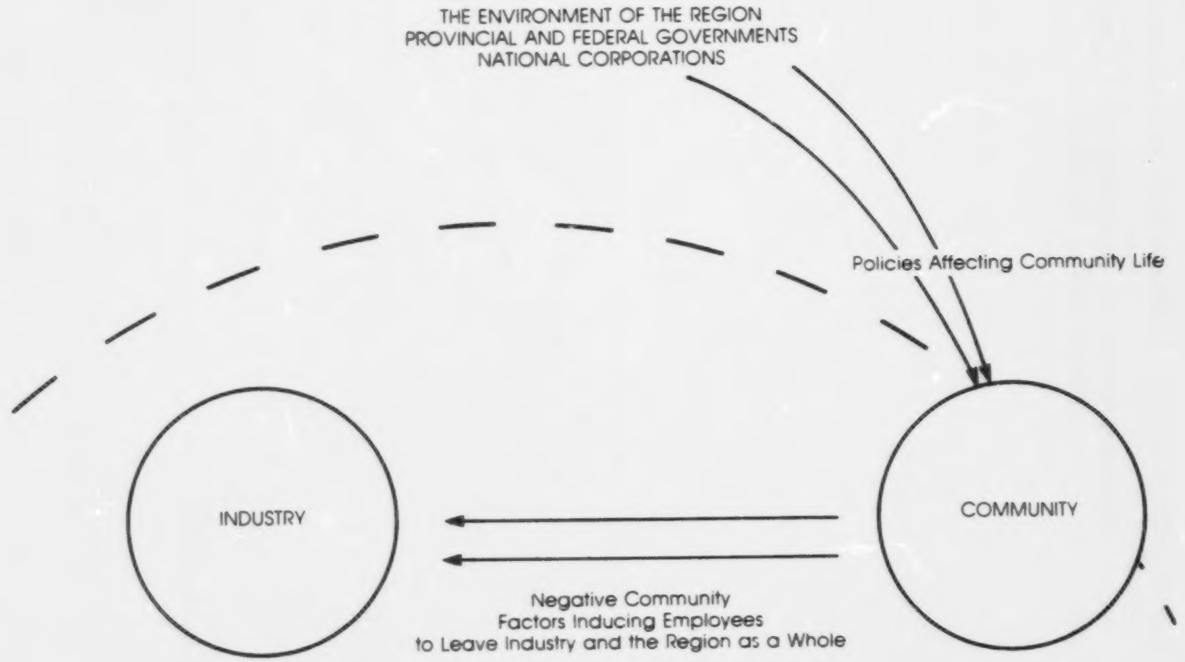
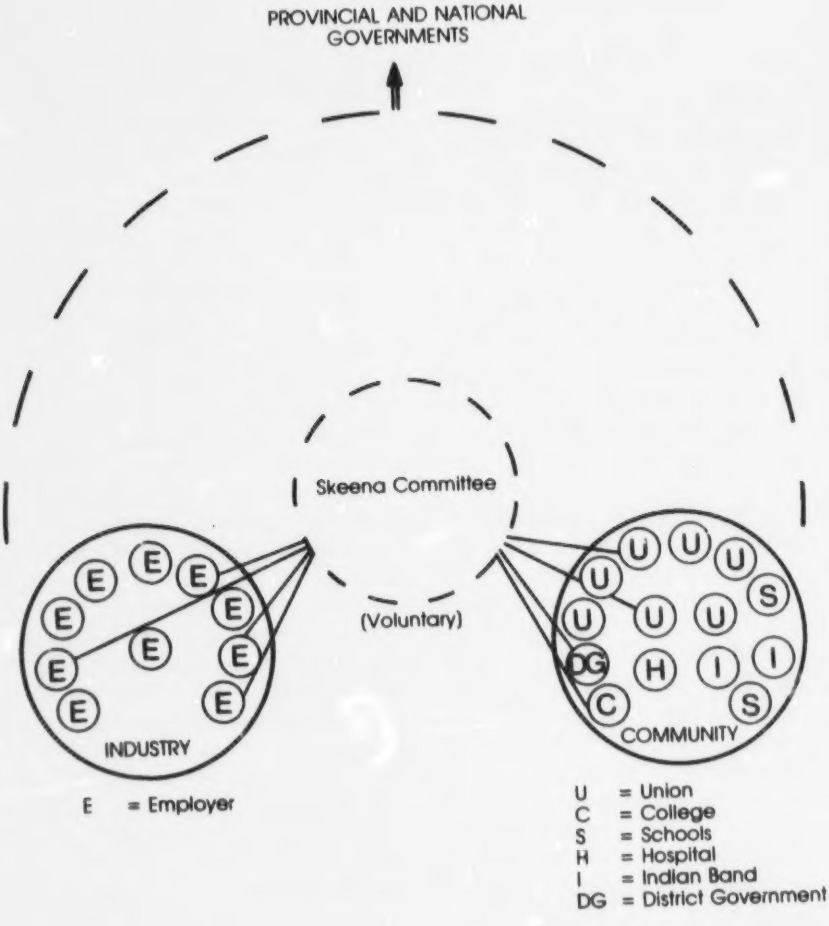

THE ENVIRONMENT OF THE REGION
PROVINCIAL AND FEDERAL GOVERNMENTS
NATIONAL CORPORATIONS
Policies Affecting Community Life
INDUSTRY
COMMUNITY
Negative Community
Factors Inducing Employees
to Leave Industry and the Region as a Whole

FIGURE II

THE STRATEGY OF THE COMMITTEE AS A LOBBY FOR REGIONAL INTERESTS


PROVINCIAL AND NATIONAL GOVERNMENTS
Skeena Committee
(Voluntary)
E
INDUSTRY
U
S
I
DG
H
C
COMMUNITY
E = Employer
U = Union
C = College
S = Schools
H = Hospital
I = Indian Band
DG = District Government

regional college, and Employment and Immigration Canada. The committee also exercised its considerable influence to challenge and eventually help reverse government policies such as the proposed taxation of camp living allowances for loggers in the forest industry.

Over a period of two years (1978-1980), a series of specific projects was initiated, each aimed at addressing some aspect of the problems identified in the diagnostic phase. Usually, these projects involved liaison between one or more local groups and an external agency such as the Department of Indian and Northern Affairs.

The major projects undertaken by the committee included the following:

1. A conference on alcohol problems and counselling needs in the region;

2. Sponsorship of a salmon enhancement project employing delinquent youth to add to the stocks in the river;

3. A region-wide study of training needs within the logging industry, with an action plan aimed at combining industry and institutional training programs;

4. Preparation and submission of briefs to provincial study groups on credit counselling and recreational facility needs;

5. Sponsorship and/or participation in workshops for the Department of Indian and Northern Affairs;

6. Liaison for an International Study Conference within the region;

7. Assistance to the reorganizational efforts of the region's main Native Indian Tribal Council.

It was, perhaps, a measure of the success achieved by the committee that it drew the fire of some local interest groups. One such attack came from a minority within the region's labour movement, who feared that the committee was a Trojan Horse that would lead to the co-optation of organized labour. Public and private debate was waged for several months between the majority of labour representatives who supported the SMDC concept, and a dissident group of unions that attempted to discredit the committee. An investigation of the Skeena Manpower Development Committee was conducted by the British Columbia Federation of Labour. The final report of the Federation of Labour found the committee to be "in no way contravening the interest of organized labour", and concluded that the committee "deserved the full support and cooperation of the Federation and its affiliated members".[6]

The attack upon the committee had strengthened the resolve of its members. Visibility of the committee had also been increased. Having weathered the attack successfully, committee members became even more confident of their ability to assist and direct the process of change in the region. The stage was set for a major initiative.

As representatives of institutions with a history of confrontation, trade unionists and managers on the committee had developed a shared understanding of their region, its economy and society. Committee members had come to agree materially on the meaning of such key concepts as growth, development, maturity, and regional economy. The committee had begun to understand that a regional economy exists and that it would be in the interests of all parties to see that this economy would mature. Now the committee members undertook to expose these internally generated understandings to public scrutiny through a regional socioeconomic conference. The conference also served as a vehicle for the committee to examine the question of whether the SMDC should continue to exist.

SOME OF THE ACCOMPLISHMENTS

The regional conference provided a setting for the public's evaluation of the Skeena Manpower Development Committee. Invitations to the conference were widely distributed within and outside the region. Almost 100 individuals attended as delegates or observers. Of the 34 organizations represented, two thirds came from within the region, the remaining one third coming from outside the region, principally from government. Overall, more than one third of the organizations represented were governmental, one quarter of the delegates were representatives of management, one sixth were union representatives, and the remaining one third of delegates were from "non-aligned" organizations such as Indian bands, women's groups, and other voluntary associations. One interpretation of this participation pattern was that the committee had a lower interest profile amongst management and union than within government. The participation of so many non-aligned representatives was also unexpected and indicated the committee's growing public credibility.

The consensus was that the action phase of the committee had produced increasingly successful labour-management cooperation within the region. It was evident that labour and community turnover had also declined significantly during this period.[7] The decrease in turnover was due in part to an overall change in the economic climate and, as well, to distinctly regional developments such as improved occupational training. Paradoxically, the decline in labour turnover led to questions about what role, if any, remained for the Skeena Manpower Development Committee.

Proposals for the future of the committee tended to correspond to the main categories of activities the committee had experimented with during its action phase:

1. Response activities--where the committee responded to externally generated initiatives by providing some form of regional service or support;

2. Liaison and facilitation activities--where the committee served as "honest broker", provided "good offices" or acted as a "catalyst" in bringing otherwise non-coordinated forces together in order to obtain a regionally beneficial outcome; and

3. Initiative activities--where the committee took the lead in developing or promoting something that did not, and likely would not, exist without the committee's positive action.

The evaluation of response-oriented activities led to the conclusion that many of them were debilitating. For example, the Federation of Labour investigation and arrangements for an International Study Conference consumed a great deal of both time and resources of the committee with minimal benefit to the region. The positive outcomes to the committee were limited to a more sympathetic coverage from the local media.

The evaluation of initiative activities was again somewhat pessimistic. The basic problem seemed to be an inability to follow through. The limited staffing of the committee made it organizationally too weak to handle project administration. Furthermore, those projects which broke new ground and raised the public profile of the committee (salmon enhancement, logger training, Native Indian community development) were also the achievements most likely to step on toes, raise suspicions, and ultimately jeopardize support from private and public funding sources.

The real accomplishments of the committee were difficult to discuss at the conference. They were for the most part the results of invisible processes, the tangible outcomes of which were necessarily credited to other organizations. Over a two-year period, the "good offices" of the committee were instrumental in facilitating a number of significant socioeconomic initiatives, between local Native Indian groups and the Department of Indian Affairs, between individual employers and the Ministry of Industry and Economic Development, and increasingly between the region as a whole and a number of small and large developers who regarded the committee as a reliable source of data and opinion on acceptable forms of regional development. Among insiders to the region, the multi-union and multi-employer basis of the committee provided a supportive structure to help individual employers resolve their local industrial relations problems or to help individual unions work through their problems with a particular employer.

In performing all of these various liaison activities, the committee demonstrated a total lack of expansionist intent, a thorough respect for jurisdictional boundaries and a sensitivity to the needs of those who were assisted to maintain "proprietorial" rights over those activities in which the committee was only temporarily involved. The principals were very much aware of the contribution made by the Skeena Manpower Development Committee, although little credit would be given publicly to the committee.

The distinctive competence of the committee has been to provide the structure and setting to enable the development of community politics. This is the continuous linking and negotiating between otherwise uncoordinated groups and organizations (public and private sector):

> "... the model of the national party political system does not suffice. Community politics is concerned with fashioning a desirable future for all the various groups who share a common habitat. It will therefore be intensely pluralistic and involve processes of continuous conflict resolution leading to a negotiated order."[8]

Community politics is not, however, an activity that is amenable to measurement, evaluation, or even observation; yet, the committee needs to claim accomplishments to which its sponsors can point in justifying their continued support of the Skeena Manpower project. The committee needs to develop a "unique competence" or jurisdiction in which it can take a visible and accountable leadership role.[9]

A report by the Skeena Manpower Development Committee's coordinator has summarized the situation as follows:

> A set of "initiative activities" in critical areas of regional, social and economic planning and development could be carefully selected to be consistent with the core Committee activities of "liaison and facilitation". However, a serious problem exists in the relatively limited internal resources of the Committee. Since the acquisition of greater internal resources (i.e., staff, funds) would be both difficult to obtain and in some ways contrary to the Committee's "independent" and "voluntary" character, it would appear that future success lies in the direction of negotiating some set of

appropriately structured external resources (i.e., project funds, pool of expertise) which the Committee could legitimately access on behalf of the regional interest.[10]

The regional conference of individuals and institutions within the Skeena Manpower Area did not succeed in defining a unique jurisdiction for the Skeena Manpower Development Committee; nor did a recent reexamination of the committee's role by the trade union caucus and the employers' association.

Nevertheless, commitment to the Skeena Manpower project revived in 1981. With the spectre of rising labour turnover from new economic pressure in the region, organized labour and employers made a renewed commitment to the committee and the joint labour-management process. Both parties, and various levels of government are now looking to the committee to help prevent another manpower and community crisis. Already, the offices of the Skeena Manpower Committee have assisted in a major relocation of wood products workers in one part of the region. The Skeena Manpower Development Committee may not yet have achieved its full potential, but it is playing an increasingly anticipatory and proactive, rather than reactive, role in the economic and social future of northwestern British Columbia.

CONCLUSION: THE SOCIOECONOMIC SYSTEM OF ISOLATED REGIONS AND COMMUNITIES

When the Skeena Manpower Development Committee was formed, it responded to problems as they arose. It treated each problem separately and did not develop a common strategy. The reason was simple: the members of the committee did not have a comprehensive overview of the area, but merely an understanding of their specific roles.

The common strategy that developed out of the diagnostic phase focussed upon the factors in community life that were seen to negatively affect labour stability. In pursuit of this initial strategy, understanding also emerged about the factors within industry that were seen to negatively affect life in the community.

This two-way relationship between industry and community was revealed to committee members by their efforts to persuade major employers to provide employment opportunities for women; by the committee's urging of buyers for major local companies to look at what is available from local industry before ordering supplies from outside the region; by the encouragement of regional employers to train local people rather than recruit skilled people from outside the region; and eventually, by the realization that successful employment of Native people in the region required new forms of work organization, and even new kinds of work.

Perhaps the most dramatic shift in perspective came out of discussions between the committee and head office representatives of regional employers located in head offices in the south of the province. Here, it became clear that a major impediment to stability was the short-term "crisis management" style promoted, consciously or unconsciously, by head offices and governments that send their up-and-coming professional and managerial personnel to prove themselves in "a northern stint" in the region. Such a career profile does not encourage the long-term, integrative planning necessary for the avoidance rather than the management of chronic crisis.

By the end of phase two, the members of the Skeena Manpower Committee had evolved a common understanding of the interdependence between industry and community. They had also developed a shrewd understanding of their relationship to forces in the environment of the region. The committee was neither naive nor strident in its call for a balance between large-scale and local industry that would support regional self-reliance. Indeed, what the committee members had discovered for themselves was the meaning and importance of the concept of a region. They had learned to see the ways in which life in the community and life in the workplace interact as a whole system, greater than the sum of its parts. Within the isolated region or single-industry community, this interaction between industry and community is particularly prevalent.

The interaction is also more visible, since the same people often find themselves in direct relation to one another in both the workplace and the community.

The structure of the Skeena Manpower Development Committee provided an organizational link to help coordinate industrial and community development. The activities of the committee were intended to encourage the development of industry in a way consistent with the aspirations of the community. At the same time, the committee sought to develop the quality of communities that could support industry in its need for labour stability and public services (education, transportation, etc.)

The processes through which the committee has worked have been two-fold. First, in an unselfconscious way, committee members have done an effective job of what one writer terms "environmentalizing" their situation.

> Environmentalization is the process of putting into a system's mind its relationship to the whole of which it is part... This often entails a search process to identify the inter-relationships that are critical to the nature of problems and, therefore, critical to their solution.[11]

The major conference which the committee members convened at the conclusion of phase two was an attempt to review and discuss publicly this concept of a regional socioeconomy. The objective was to develop a dialogue with the wider constituency of the committee, namely, other individuals within organizations from which committee members were drawn, as well as individuals from other non-affiliated organizations within the region. The conference was, in the terms of the writer quoted above, an attempt to "humanize" the organization of the Skeena Manpower Development Committee: "Humanization of an organization requires making its objectives compatible with those of its individual members so that they are mutually reinforcing".[12]

In spite of the lack of substantive conclusions about a prescribed role for the Skeena Manpower Committee, the public conference did establish the need for committee members to develop more extensive dialogue with their various constituencies. What might initially have appeared to be a process of dialogue between members of a committee representing different interests of union and management has clearly become a process of internal dialogue between individual committee members and their own unions or management groups.

People involved in the Skeena Manpower Development project have been pioneers. They have been forced to learn simultaneously about the nature of problems in their environment and about the kind of organization needed to solve these problems. Through their efforts they have contributed to improved labour and community stability in the Skeena region. The Skeena Manpower Development project has also provided something of wider significance. In its role as a link between industrial/economic and community/social development, the Skeena Manpower Development Committee represents a holistic and therefore more effective approach to the development of man and society.

The development of holistic and coordinated practices is both a challenge and an opportunity in isolated regions, particularly in the northern frontier of Canada. In coming years it will likely be at this northern frontier that further innovations will be made to develop the quality of life, in the full and diverse meaning of that objective.

NOTES AND REFERENCES

[1] The Skeena Manpower Area is bounded on the west by the Queen Charlotte Islands, on the north by the southernmost tip of Alaska, and on the east by north-central interior British Columbia. The main geographic feature of the region is the Skeena River.

[2] D. Bryant, C. Hoyt and B. Painter. Labour Instability in the Skeena Manpower Area. B.C. Research Document. 1978.

[3] Arthur Kube. "An Overview of the Skeena Manpower Mandate." An Address by a Past-Chairman of the SMDC, and Western Regional Director of the Canadian Labour Congress.

[4] Phase One Report, Skeena Manpower Development Committee. Ottawa, Employment and Immigration Canada. 1977.

[5] D. Bryant, C. Hoyt and B. Painter. Labour Instability in the Skeena Manpower Area. B.C. Research Document. 1978.

[6] From the unpublished Dumphy Report. B.C. Federation of Labour. 1980.

[7] B. Painter, et al. Provincial Worklife Survey. B.C. Research Document. 1981.

[8] E. Trist. "New Directions of Hope: Recent Innovations Interconnecting Organizational, Industrial, Community and Personal Development." Human Futures, Vol. 2, No. 3. 1979. p.175-185.

[9] Ibid. A central point of the author's thesis is that there must be a "surrender of power, some transfer of resources on the part of authorities" in order for such innovative voluntary organizations to be effective.

[10] Alexander Lockhart. "Coordinator's Report of the Skeena Manpower Development Committee." 1979, 1981.

[11] Russell Ackoff. Redesigning the Future. Toronto, John Wiley & Sons, 1974. p.55.

[12] Ibid. p.45.

PART III

DIFFICULTIES IN IMPLEMENTATION

DIFFICULTIES IN IMPLEMENTATION

Several difficulties may interfere with the implementation of a planned change, since the process of design or redesign has no logical step-by-step sequence. The lack of economic incentive, and vested interests are just two of the reasons the change may not be successful.

The first case, by Maurice Boisvert, reviews the difficulties that were encountered in attempting to redesign work at a warehouse that distributed general merchandise to a large number of outlets in Eastern Canada. In initiating the project, the company selected a number of sites where a QWL project might begin, and then asked the union for their recommendations. The sites included the fruit and vegetable warehouse, the catalogue store warehouse, and the garage, in order of preference. At the fruit and vegetable warehouse, the union refused to be part of QWL change, unless the company was willing to grant a $60 per week salary increase to the workers. The company then suspended all attempts to intervene in the fruit and vegetable warehouse and directed its efforts to its second choice--the catalogue warehouse. The initial enthusiasm at the catalogue warehouse did not last, because the newly established employee committee made little progress, even though some of the store managers were satisfied with some of the initial recommendations. Some of the workers who had a high level of performance under traditional management, seemed to be at a loss when faced with the need to take the initiative, to be autonomous and resourceful. Some even wanted to revert to former practices. As the project progressed, the absence of the union representatives from the main warehouse began to create rumours that management was using a strategy to undermine employee solidarity. Workers in the smaller warehouse were being called traitors. The project was subsequently terminated.

Kiggundu's case illustrates how a manager took steps to improve an organization's quality of working life and quality of services. She hoped to develop a structure in which employees cared about themselves and the consequences of their work. Her analysis revealed, among other things, that two of her supervisors would make it very difficult for her to change the organization in the direction she desired. In addition, there were some serious doubts as to whether the employees were able and willing to take on more responsibility for their work. In fact, many of the employees believed that sooner or later the new manager would go away and things would return to normal. Even though her personnel were reluctant to accept her definition of management and organizational design, the manager embarked upon a process of change. Her interventions included workshops, surveys, the development of autonomous work groups, improved staff training and development. The changes were difficult at times, because she found herself managing the department without supervisors. She was able to pull it off by investing a great deal of her own time. The changes had some success, and quality of work and responsibility did improve. Two years after she came to the department she was promoted, and a new manager took her place. After a reorganization, many of the quality of working life changes disappeared. The organization seemed to have moved back to its original design.

The next case, by Bean, describes how an organization tried to respond to what the supervisors viewed as "irresponsibility and antagonism of employees and the union". The company and the union, in responding to this problem, took part in a program for redesigning work in the plant. The QWL program was headed by a steering committee, which was to guide and coordinate the various activities of the program. Project teams were created to deal with production goals, discover how people felt about their jobs, identify problems, and propose changes. Several problems plagued the project--suspicion felt by union and employees towards management, unrealistic expectations about QWL, responsibility of the project teams, and so forth. The case highlights many of the difficulties of the project, yet there were achievements--some improvements in labour-management relations, and experience with a new multi-skilled work structure.

The final case, by Nightingale, describes some of the difficulties of sustaining a QWL program. It points out that many QWL-related programs have been terminated after passing through an experimental stage. It describes an employee governing committee at Petrosar where there were frequent communication breakdowns between employees and management, and employees began to feel that the committee did not effectively represent them. The case highlights an attempt to revitalize the employee committee, and to ensure that there would be a continual renewal process.

CARDINAL WAREHOUSE

by

Maurice Boisvert

ABSTRACT

This case reviews a QWL project in Steinberg, a large supermarket chain in Quebec. After the successful design of a frozen food warehouse, the company attempted to redesign the warehouse of its Cardinal subsidiary which distributed general merchandise to a large number of outlets in Quebec, Ontario, and the Maritimes. This attempt, unlike the previous one, was rejected by the majority of workers, and the union asked for a termination of the project. Although the specific project was terminated the company still continued to espouse the QWL philosophy; it presently has ongoing QWL projects in Ontario and Quebec.

INTRODUCTION

The Company

Steinberg is a large supermarket chain with stores in Quebec, New Brunswick and Ontario. In 1980 it had more than 25 000 employees. The first involvement of the company with the quality of working life (QWL) idea came at the turn of the seventies when it was seeking to increase or, at the very least, maintain its profitability against a background of increased competition and labour costs associated with higher wages, strikes, absenteeism, and (at times) sabotage.

Traditionally, management has reacted in a number of ways when faced with these business conditions. One is to increase management control in order to reduce the costs of operations and eliminate "subversive" employee behaviour. Another reaction with a more long-term outlook, is to increase mechanization in order to reduce substantially the number of rank-and-file workers, as well as to change the characteristics of the labour force in ways favourable to the company. These solutions were unpalatable and unrealistic, however, given the nature of the business and the expected reactions of the workers. Moreover, the company had established in the sixties a tradition of openness to new ideas and a willingness to try the latest innovations in the field of organizational behaviour and development.

It is no surprise that under these circumstances the report entitled Work in America was soon read and discussed by top management. Early in 1974, a visit to the new General Foods plant in Topeka, Kansas was organized for a number of directors as well as for the Vice-President (Personnel) of the corporation. A visit followed to one of the Alcan plants in Quebec, where some of the nascent QWL ideas had also been tried.

Top management was impressed with these developments and expressed a readiness to experiment along the lines exemplified by these projects. The transfer of the frozen food warehouse to a new facility provided the opportunity sought. In this case, the union chose to limit its involvement to a watchdog role as the operations of the new warehouse were organized using semi-autonomous work groups.

It soon became apparent that the experiment was an outstanding success. The 25 or so employees were able to do all the jobs; they operated the warehouse as a group, took charge of its day-to-day management, and learned to settle the inevitable conflicts using a problem-solving mode. This was also reflected positively in the results of operation. The stores were well-serviced in spite of a noticeable reduction in the number of hours worked. Even accounting for the additional costs attached to increased training of employees and time out for meetings, the semi-autonomous work groups' productivity (which rose from an index of 135 to 200) and profitability surpassed what could have been expected from a more traditional work organization.

These gains were shared between the workers and the company, with the workers benefiting from a bonus (to take into account that they rotated through all the jobs), and splitting (half-and-half) with the company any increase in profit. In addition, everybody was impressed by the fact that absenteeism was cut drastically from 16% to 7%, while employees' motivation and satisfaction (observed directly and measured through questionnaires and interviews) increased markedly. From the company's viewpoint, the sole shadow on this success was the relative absence of union involvement.

Although the employees were still part of the bargaining unit, they were not by any standard militant. The union was watching this development with mistrust, wondering what could be behind it. Was it another trick to weaken the union? Was management really ready to share a significant part of its power and resources with rank-and-file workers? What would happen in this kind of work organization when workers aged and began to have difficulties meeting the group's standards? In what ways could the union be of use to the workers if this kind of work organization was to spread throughout this company or to others?

Top management became conscious of the existence and importance of these issues and, although still (if not more) committed to the QWL philosophy, it sought aid to develop a truly systematic corporate strategy and to diffuse concrete changes throughout the organization.

Preliminary Planning

In 1975, Steinberg retained the services of an internationally renowned consultant. Intensive discussions were launched among top management on the principles and concepts pertaining to QWL. This exercise was in line with one of the major premises of QWL. Indeed, for a project to succeed and especially to diffuse throughout the organization, senior management must actively support it in visible and concrete ways. Of course, before doing so it must be convinced of the potential benefits of the changes envisioned and aware of their possible costs.

Shortly after these early talks, a number of corporate officers including the head of the Cardinal distribution centre participated in a week-long QWL seminar in Sweden. They returned firmly convinced that unions must play a major role in any QWL change. Top management and the consultant then met the union and agreed that Cardinal should be the primary target for a change since its management had already shown a willingness to work in the spirit of such a change.

Previous experience in the field showed that the likeliness of diffusion to the remainder of an organization depends on the relative importance of the pilot project (when there is one). Indeed, the frozen food experiment illustrated this belief. Although quite successful by 1977, it still remained an isolated phenomenon in the company. This new design was atypical because the organization was physically segregated from the other worksites, employing relatively few workers, who had recently benefited from a transfer from an old building to a new building. It was believed that the next QWL project within the company should, ideally, involve the change of an existing work organization (a redesign), affect a relatively large number of employees and managers, and be close to the heart of Steinberg's operations.

After considering these factors, top management and the heads of the various divisions isolated three sites (in the following order of preference): the fruit and vegetable warehouse which is an integral part of the the company's main division; the Cardinal warehouse; and the garage.

This decision was transmitted to the union representative who was asked to think about it and provide comments to the company within a week. During that time, the company came to realize the unsuitability of its first choice. (Only three months after the end of the last round of negotiations, the union had asked to reopen negotiations.) On April 15, 1977, the following position was advanced by the union: "There will be no QWL change in the fruit and vegetable warehouse unless the company agrees beforehand to grant a $60 per week salary increase to the workers". This demand was justified, according to the views expressed at the time, as an anticipatory adjustment, given the expected increase in profitability of the warehouse (as had been the case in the frozen food change). On April 18, the company suspended all attempts to intervene in the fruit and vegetable warehouse and redirected its energies toward its second choice--the Cardinal warehouse.

CARDINAL

Cardinal was a division specializing in the sale of durable goods to consumers. A client would go to a store, review a catalogue where the goods were described, pick up a slip, identify the nature and quantity of goods to be bought, bring it to a counter where clerks would verify the order before going to the back of the store to select the items on the shelves of a small warehouse. Such a store, by cutting display costs, reducing the number of people employed and offering a limited variety of the most popular goods, attracted consumers seeking lower prices.

The key to the success of this marketing formula is the proximity of the stores to the customer and the ready availability of the merchandise. Indeed, customers tend to go to these stores only to buy specific items. Not having them in stock means losing future visits, and revenues. Quick and efficient servicing of local store locations from the central warehouse becomes a matter of strategic importance.

The stores were staffed mainly by women earning little more than the minimum wage. The number of employees in any store varied considerably according to the time of the year or week. It would be typical to find only two employees in a store at the beginning of the week, and four on the busier weekends. The staffing level of the central warehouse was affected by seasonal variations, with as many as forty or fifty temporary employees added during peak periods. The warehouse workers tended to be young males with little formal education. They were unionized and paid slightly more than the norm for this industry. Twenty-five white-collar employees also worked in the head office.

The Central Warehouse

The local stores were serviced from two central warehouses with the smaller one located beside the head office on Hickmore Street. It handled precious goods like jewels, and took care of the merchandise returned by dissatisfied customers. The twelve employees there were generally considered to be under less work pressure than those at the main warehouse.

The main warehouse on Michel-Jasmin Street handled most of the goods required by the local stores. The policy was to offer 24-hour delivery service, which minimized the volumes of stock local stores were required to maintain. For this to work successfully, daily exchanges were required between the stores and the warehouse. The jobs in the main warehouse included: a senior clerk who planned the deliveries of goods from suppliers; receiving attendants who handled the goods delivered by suppliers; layout clerks who located the merchandise and identified items in short supply; forklift operators who moved the goods about in the warehouse; assemblers who filled orders from the individual stores; and inspectors who sampled orders prepared by the assemblers in order to check for their completeness.

Early Steps in the Change Process

The organization's readiness for change is frequently mentioned as a key factor in the successful choice of a site for innovation. Readiness means, among other things, that there is a problem, that it is acknowledged by the people concerned, and that they are ready and willing at least to experiment with new behaviours or new situations.

Such readiness for change was identifiable at Cardinal. We have already mentioned that the union had regarded Cardinal as a promising site for the application of QWL principles. Although the reasons for such a choice are difficult to reconstruct, the union was no doubt aware of the previous initiatives in the frozen food warehouse.

The head of the distribution centre had already attempted some improvements to the working conditions in the warehouse. These changes aimed at gradually increasing the involvement of rank-and-file employees in decision making. For instance, there had been a big snow storm and, with agreement of the head of the distribution centre, employees had worked harder than usual and been able to leave the warehouse early in order to avoid the traffic snarls. This had so impressed the foremen that they initiated a meeting between union and management to discuss the philosophy and principles of QWL. It had been agreed that the working conditions in the warehouse should be examined, and a visit should be organized by a union-management delegation to companies already experimenting with QWL concepts.

It is often said that the success of a change depends upon the active and visible support of powerful managers. Such a commitment could be found in the head of the distribution centre. As early as 1975, when he first came to Cardinal, he had been impressed by the change of spirit in the young new employees as they settled into their jobs. They appeared to become less and less dynamic and spirited, and seemed to lack interest in their work. To respond to the problem, he began to investigate the suitability of a QWL philosophy at the Cardinal warehouse.

From the head office viewpoint, the interest shown by the head of the distribution centre was both welcome and feared. It was welcome because it was congruent with the new spirit of management that the directors wanted to introduce throughout the company. On the other hand, while business decisions must be inspired by challenges and at times philosophy, they also must take into account the bottom-line realities. In other words, a QWL project has to meet both humanistic and profitability criteria. The vice-president (personnel) at head office, therefore, had stated four points that should be investigated before taking any innovative actions: the level of productivity, absenteeism, grievances, and error rates in receiving and expediting orders for merchandise.

The subsequent investigation using these guidelines produced such a negative picture of the distribution centre that it made clear the purpose and urgency of a QWL intervention. It was needed not so much to solve pressing problems as to respond to a situation created by sociocultural changes. The centre's younger workers were expecting and demanding better working conditions, and more interesting jobs over which they could have some influence. Any intervention, therefore, had to take account of long-term goals.

The failure to initiate a QWL project in the fruit and vegetable warehouse provided the opportunity to do something at Cardinal with full support from the head office. Senior management of Cardinal and the local union, accompanied by two resource persons, visited the Heinz plant in Pittsburg where employees were very involved in the management of internal operations. Representing management were the vice-president in charge of Cardinal, the head of the distribution centre, and a foreman stationed at the main warehouse. The union sent the treasurer who was also the secretary of the local, a business agent, and a delegate from the warehouse. The two resource persons were the director of work studies from head office, and a newly-hired internal consultant (henceforth labelled B).

The visit reinforced the original intent so much that on April 20th, 1977, an umbrella committee was formed to take over the responsibilities of launching a QWL project in the Cardinal warehouse. Members of this committee were: the head of the distribution centre; an internal consultant (A) on loan from the food division; the consultant previously mentioned (B); the vice-president and general manager of Cardinal; the director of work studies of Steinberg Ltd.; an internationally known external consul tant; and a member of Steinberg's top management.

Preparing the Supervisors

The label QWL is generally associated with the improvement of the lot of rank-and-file workers. This does not mean that such changes can be made without involving middle management or supervisors. There are at least three important reasons for giving them a role to play in such a venture. First, not involving these levels of management might look as if the changes were being made "against" them. Can one put forth a project called QWL when it hurts a distinct group of employees? Second, middle management and especially foremen know a lot about what is going on on the work floor. This concrete knowledge of operations is critical to the success of a QWL venture. If, for instance, foremen had been actively consulted in the initial choice of a change of site, management likely would not have attempted to focus on the fruit and vegetable warehouse. Third, an examination of the available case studies shows that when foremen are left out of the planning phase, they react in negative ways to block or sabotage QWL projects. Thus, it was decided to present the proposal for the change project to the foremen for their consideration.

In the early spring, the six foremen of the two warehouses met the General Manager, the head of the distribution centre, the director of work studies, a represen tative of head office, and the two internal consultants (A and B) to present and explain QWL concepts; to discuss the likely impact of such changes on supervisors; and to identify the steps in the proposed change process. The conversations became more emotional after the departure of the general manager and the representative from head office. Fears surrounding the new concepts were expressed openly. The discussion of these new work roles caused one foreman to exclaim: "That's not a full-time job." The head characterized the new role as one of "management" rather than "supervision". It was restated that, although management was determined to bring about a change in the work at the warehouse, this would not be done at the expense of foremen and the content of their jobs.

Preparing the Union

The next day, the head of the distribution centre and the consultants met with union representatives (the secretary of the local, a business agent, and the delegate). An account was provided of the previous day's meeting, and discussion began on how and when to present details of the proposed QWL project to employees. The secretary of the union pointed out that it would be in line with the QWL spirit if the presentation were made by union representatives and foremen.

A second planning meeting was held involving the two delegates from the warehouses, the internal consultants, the head, and the six foremen. QWL concepts were discussed at length and preparations were made for a general meeting with the employees.

General Meeting of Employees

Several weeks later, a general meeting was held with all warehouse employees including drivers. After a brief opening by the head, the union representative stated that the meeting had been set up to enable employees to decide for themselves, after a full disclosure of information, whether they wanted to become involved with the proposed QWL project. Basic concepts were presented, including consideration of two diverging views of the manner in which the warehouses could be run (authoritarian or participative management). At the end of the session, employees were asked if they wanted to gather during a weekend to participate in a reorganization of their warehouse. The employees decided to participate in the weekend session by a secret-ballot vote of forty to four.

Weekend Meeting for Employees

Preparations and invitations. There was a consensus among the head, the director and the two internal consultants that the success of the weekend meeting was critical for the future success of the project. It was decided to make a preliminary inquiry into the social and technological operation of the warehouses. The director and consultant A proceeded to interview all employees. The questions covered the following: a description of a typical work day; job and work satisfaction; specific characteristics of their jobs; the consequences of work on the worker's lives, perceptions of their role at Cardinal, and their expectations about the upcoming weekend meeting.

Managing a QWL project is the art of balancing the positive and negative group forces. Workers have a concrete outlook on their life at work, and theoretical concepts, to be effective, must be related to their personal situation. This, of course, is also true of any promises for changes. Very early, expectations rose for rapid modifications to occur in the work settings. However, while this enthusiasm was positive, the workers' expectations were shaped by a somewhat simplistic view of QWL which tended to ignore the possible hazards involved in implementing a change process. The dilemma was real: How could workers develop an understanding of the set backs and difficulties possible in introducing change and still recognize evidence of management's sincere willingness to change? In order to deal with this question the sessions were designed to focus on the process of implementation.

The weekend meeting. After making some brief opening remarks, the head left the gathering in order to allow the participants freer expression of their views.[1] The foremen remained, along with forty-one workers, the union delegates, two union observers, and the two internal consultants.

The consultants reviewed the key QWL concepts and divided the participants into six working groups. Each group began analysing each job held by the team's members using criteria provided by the session organizers. The consultants moved among the work groups but intervened only when asked to do so.

The sessions were filled with the search for concrete changes in the patterns of work at the warehouses. Among the suggestions recalled by some participants were:

1. eliminate the time clock
2. increase contacts with the stores
3. broadcast music in the warehouse
4. adopt a compressed workweek
5. paint the cafeteria with colors chosen by employees
6. train the workers on budget matters
7. plan the sickness leaves.

It was agreed that the proposals would be studied further and planning for their implementation would be done by a committee elected on Sunday morning. The sessions ended with all participants expressing very positive feelings about the search process. The employees were satisfied at being able to suggest concrete improvements to their work. As a result, expectations were high concerning the beneficial outcomes of the weekend. Some individual expressions of this satisfaction were recalled by the senior consultant: "Everybody had ideas to share," "We are complementary," "There are no ideological barriers between us".

In contrast, these positive feelings appeared somewhat exaggerated to the head who returned for the plenary session on the second day. To him, the results of the meeting were only preliminary suggestions that needed much further elaboration and development. Such a high level of enthusiasm, therefore, appeared premature. But he kept these thoughts to himself since the employees seemed so overjoyed with their accomplishments. According to the internal consultants, the success of such a session could not be measured by considering only the outcomes at their face value. One also had to appreciate that this was the first such meeting, and that all participants were involved in a "spirit of collaboration".

IMPLEMENTATION

Continuing the Momentum

It is one thing to generate a list of proposals for change, another thing to implement them. Even though the differences between planning and implementation have been thoroughly described and documented in management literature, certain unique difficulties are created by the very nature of each QWL project. Such an endeavour usually breaks with the established modes of organizational behaviour, so that obstacles develop relating to both the nature and the process of change. Yet, it is essential that the momentum for change be maintained; otherwise, heightened but unmet expectations will be transformed into doubts and perhaps even suspicions.

The employee committee established at the end of the weekend had the crucial task of maintaining the momentum. They agreed to follow a number of steps: (1) write up a report, (2) have management and union study the recommendations and conclude an agreement, and (3) determine employee acceptance of the recommendations by conducting a ballot.

The committee made little progress in the first several months, but it was encouraged by consultant B to think through the consequences of any recommended changes. Its report was finally submitted to management in the fall (Appendix I).

Even before the report had been accepted by the head of the distribution centre, changes had begun to be made. The pairing of the assemblers at the main warehouse and the individual stores is a case in point. Its purpose was to set up direct links between those responsible for dispatching goods from the warehouses and those responsible for receiving them at the stores.

In preparation for this change, the head decided to meet with each of the store managers. A typical meeting began with a discussion of basic QWL principles, which led to the presentation of the warehouse employees' suggested liaison scheme, whereupon an appointment was made for an assembler to visit the store. Not all assemblers volunteered for the new plan because some didn't want the added responsibilities or were too shy to deal with the interactions required in the restructured role.

From both the store managers' and most of the assemblers' viewpoints the operation was a success. The new insights gained by everyone meant the resolution of long-standing problems and more efficient servicing. For instance, loads to stores were arranged so that they would go through the store's doors without having to be dismantled, and boxes weren't overloaded so that they might be handled easily by store personnel.

But these and other QWL changes were not accepted in the warehouse with universal approval. Some of the workers who had a high level of performance under traditional management seemed to be at a loss when faced with the need to take the initiative, to be autonomous and resourceful. Some even wanted to revert to former practices, but their colleagues objected that there couldn't be two different modes of behaviour in the warehouse.

Changes in the Smaller Warehouse

The literature in organization theory and management is replete with studies demonstrating that a firm's size constitutes an important determinant of organizational practices and employees' behaviour. Broadly stated, complex and varying work can only be coordinated through heavy reliance on mutual adjustment. Of course, this limits the number of members that can effectively constitute a work group. QWL projects typically imply some form of job enrichment and often workers must do a mix of tasks previously accomplished by others of their colleagues, superiors, and functional experts. Moreover, during the transition period when the one-task-one-job model is replaced by the multi-task-multi-job model, the worker's environment becomes quite dynamic. QWL projects typically imply shifts from coordination based on standardization or hierarchy toward mutual adjustment.

The modest scale of operations in the smaller warehouse made it easier to implement group-related changes. Employees at the smaller warehouse slowly but surely worked their way toward forming a truly semi-autonomous work group. At the beginning, the slow pace of the committee in preparing recommendations following the general meeting seemed to dampen the workers' enthusiasm for change. The employees informed the head that although they were interested in change, they felt inadequate to introduce the desired innovations. The head reaffirmed his acceptance of the recommendations and suggested that they either work with consultant B on any problems of implementation, or else work through these difficulties with their foreman.

The employees opted to work with their foreman. At their first meeting, the foreman offered to leave the room and let them decide alone. But their response was: "We all work at Hickmore, you have to get involved as much as we do." They then set up a schedule to study in detail each of the proposals for change. In the following days and weeks, as soon as they believed they had dealt with all of the implications of a suggestion, they asked for the head's approval for implementation.

Not all of their requests were well conceived, however. For instance, after they submitted a proposal for the adoption of a shortened workweek, the head asked them if it wouldn't be more appropriate for them to determine beforehand how they would get the same amount of work done in a shortened workweek. After reflection, they realized that the successful adoption of a compressed workweek required that all workers accept a collective responsibility for completing the necessary tasks, so that occasional absences wouldn't disrupt effective operations in the warehouse. Having accepted that each of them must become capable of performing all of the tasks in the warehouse, the workers sought to determine a way of bringing about this change. Training was called for but in what form and for whom? The head suggested constructing a chart on which, beside each employee's name, an inventory would list the tasks he or she could perform, those he or she couldn't, and what he or she needed to learn to remedy any deficiencies. Of course some employees were more hesitant about this exercise than others, but with the persuasion of their colleagues they all came to agree on the individual training required.

According to the head, management's interventions were not detrimental to change in the warehouse. When confronted with opposition by management, workers did not retreat, but went back to work in order to improve their proposal. As a matter of fact, their priorities began to shift as they became more autonomous and multi-skilled. Even the shortened workweek, for instance, took on less importance. Comments could be heard such as: "It is good to come to work in the morning", and "It is good to work together". Creativity also surged as employees began to suggest changes in the layout of their jobs and in delivery procedures. Even cleaning of the warehouse improved!

As the employees felt that they were becoming more capable in the various jobs, they asked for adjustments in their remuneration. Contrary to some fears, the head accepted this proposal once the following conditions were met: increases in job-related skills must be tested by a colleague, and the group must agree that the employee has achieved a higher level of skill; job rotation must be adopted to maintain the various job skills (it was up to the employees to determine a way to rotate their jobs regularly); and a salary increase would be granted as soon as another task was learned.[2]

These changes were paralleled by changes in employees' behaviour. For instance, some employees were openly confronted by their colleagues who objected to their continuing absenteeism. Although this was a difficult step, they were satisfied that it had to be done. As a result, absenteeism, for all practical purposes, disappeared, and the need for part-time help was drastically reduced even though overall activity in the warehouse was increasing. These changes were accompanied by increases in productivity. Data on productivity were fed back to the employees on a weekly basis. It is not surprising, therefore, that they asked for a share of the resulting increased profits.

The head agreed in principle and stated that a suitable formula had to be accepted by the union. After a few rounds of discussion, it was agreed that the following ratio would be used to measure productivity for the purpose of profit sharing:

$$\frac{\text{Number of goods in and out of the warehouse}}{\text{Man-hours worked}}$$

Discussion then focussed on the different types of profit sharing and the percentages to go to the workers and to the firm.

As these exchanges progressed, the absence from the main warehouse of the union representatives (who had been invited to the meetings) became disturbing. Rumours originating in the main warehouse suggested management was using a strategy to break up employee solidarity, and the workers in the smaller warehouse were called "traitors". The drivers' delegate from the main warehouse launched a formal complaint with the union. He and a union representative met with the employees of the smaller warehouse, at which time they circulated a letter asking the company to stop the experiment and to revert to the former remuneration system. All employees signed the letter. When asked by the head to explain the situation they replied, "We are tired of these tensions", "We don't want to be seen as traitors", and, "We are sorry to have to return to the old ways".

In response, the head stopped all ongoing changes in the warehouse. Shortly thereafter, the union asked the company to suspend all QWL projects in Quebec for one year in order to study the matter and develop a firm position.

Changes in the Larger Warehouse

It has already been observed that the pace of change at the main warehouse was quite slow at first. The employees appeared to be somewhat hesitant about the possible motivations behind management's support for QWL initiatives. As a result, few tangible changes had occurred in the operation of the warehouse.

A particular event was to overcome this inertia, however. One day about six months after the weekend meeting, employees took an hour longer than the regularly scheduled time for their lunch break. When work resumed, management met with them to determine why they had deviated from the normal schedule. The workers expressed frustration that they did not have more control over the warehouse and, further, they wanted to change to a four-day, forty-hour workweek. Management suggested that they would be prepared to explore the consequences of such a change in the hours of work. The employees responded by suggesting that management had neither the knowledge nor the experience to discuss it further and only by adopting such a schedule would they be able to determine its impacts.

Worker control in the warehouse. Management decided to pursue one of the suggestions of the previous day, to give workers more control over the operations of the warehouse. Two foremen were assigned the task of demonstrating to the employees the techniques used in the weekly planning of work assignments, in order that this basic responsibility might be assumed by the workers themselves. But progress in this training proceeded very slowly, and growing frustrations were expressed both by the foremen and the employees. The employees, for instance, began to complain about the "nosiness" of the foremen, and were critical of management motives.

Management was somewhat confused by these responses and in its assessment of the situation thought that the presence of foremen in the warehouse might be the source of the delays and complaints. They called a meeting of all employees in an attempt to discover the roots of the problems and frustrations. During that meeting, however, employee mistrust and aggressiveness continued to obscure the source of difficulties.

In an attempt to break the impasse, the head decided on a radical step and let the employees take on the full responsibility for the operation of the warehouse. In the first two weeks following this decision, the warehouse functioned without incident. The workers handled the tasks effectively while maintaining group solidarity through self-discipline.

Gradually, however, some slippage began to occur. Faster workers, for instance, started to complain about having to do more than their fair share of the work, and rather than stimulating the slower workers to improve their performance levels, they eased back in their own output.

At the same time, the two foremen (displaced by the worker control scheme) were promoted to newly created positions, as managers of warehouse operations and analysis. The employees viewed these advancements as further proof that all of the benefits from the QWL project were going to management, and again reacted with cynicism and frustration.

In the warehouse, operations deteriorated and employee rest periods lengthened as the original discipline and control by the group diminished. These trends developed at a time when union-management contract negotiations were lagging badly. The combination of these factors affected the main warehouse and resulted in labour and management frustration with a QWL project that had appeared so promising at the general meeting nine months earlier.

Frustration leads to breakdown of the project. The tensions and frustrations reached a climax when the proper functioning of the warehouse reached an unacceptable level. By the week following Easter, thirteen stores had experienced serious shortages of goods. It had become obvious to all in the warehouse that the situation could not continue.

Management was cautious not to overreact in a manner that might be interpreted as a lack of confidence in the employees. Instead, the employees arranged for a meeting with management. Their message was that they felt unable to continue as a group and manage the operations of the warehouse without supervision. It was agreed, however, that consultant A would meet with the employees to facilitate the achievement of satisfactory resolutions to the conflict. These sessions unearthed a series of specific problems that were considered to be important to resolve if the QWL efforts were to continue and succeed. The three main groupings of problems were the lack of mutual confidence among the warehouse workers; a similar lack of trust between the warehouse workers and fork lift operators; and the lack of confidence between employees and managers.

Meanwhile, the work performance levels in the warehouse continued to decline. Between 20% and 30% of the store orders were not delivered on time. The new QWL procedures had resulted in more flexible hours of work, and the assemblers, who put the store orders together for shipping, had been leaving each day when their tasks were completed. The fork lift operators were also leaving early, when their initial tasks were completed, and frequently were not available to load the goods onto the trucks for delivery. As a result, deliveries which could have been dispatched to the stores in the late afternoon of one day were being delayed until the next day. This lack of integration between the tasks of assemblers and fork lift operators was resulting in inefficiencies and stores being short of inventory.

The employees decided that the remedy for this problem was to allow only the assemblers to leave early when their tasks were completed. This decision understandably was not well received by the fork lift operators, and they slowed down the performance of their jobs so that the assemblers could not complete their work. As a result, no one was able to leave early and the store orders were taking even longer to fill.

By mid-summer the situation was unacceptable, and management began to intervene in the operations of the warehouse. At the same time, the two internal consultants were also meeting with the employees in a continuing search for practical solutions to the many problems in the warehouse. The situation appeared so gloomy to the head that he considered abandoning the change effort and reverting to the conventional mode of operation.

Senior management, however, was interested in attempting to salvage the QWL project, because it was at that time the only project of its kind within the company. It was decided to conduct special refresher sessions to remind all concerned about the philosophy and principles underlying the change effort. Special attention was given to the importance of trust when a group is charged with the autonomous control of an operation. On specific matters, it was agreed that the permanent employees should be responsible for deciding which part-time workers would be hired and when.

An important feature of these sessions was that the union did not participate, and any agreements reached failed to have its formal sanction. Shortly thereafter, the union asked the company to suspend any further attempts at continuing the QWL project. As indicated earlier, pressure was applied to stop the change activity in the smaller warehouse as well. The union position was based on its desire to have a one-year moratorium in order to consider its position and involvement in such projects.

COMMENTS AND CONCLUSIONS

It is hazardous to attempt to identify the main or real causes of the failure. Even the word failure here can be disputed because this series of initial attempts has not deterred the company from pursuing the improvement of the quality of working life in its operation. Both the company and the union learned a lot from this attempt, and since that time new projects have begun with full collaboration by the union. Improved levels of support and training, however, have accompanied these more recent efforts.

Their continuing involvement shows the extent of this organization's perseverance. One must consider, therefore, that for a large company to embark on a QWL approach to operations, it must first develop a deep commitment to its values, so that early difficulties and even failures will not mean that the overall QWL objectives will be abandoned.

This case demonstrates the necessity of an open and full involvement of the union in any change programs. Without joint union-management ownership of the effort, the incentive to work for its success is lacking, and too much room is left for politicking and manoeuvring by detractors. Solid union and management involvement means support and understanding from all levels of these participants and not just from those at the local or lower echelons.

Well-planned training programs also constitute an important prerequisite that pays off in the long run. QWL contains more than recipes or a checklist of principles; it implies, in addition to behavioural changes, the adoption and sharing of attitudes and values such as collaboration, trust, support, high quality work, and respect of others. In other words, work cannot remain simply a way of earning a living, or positioning oneself in society, or of spending one's time. It also cannot be regarded as a social club. Instead, it must become an important area of emotional as well as cognitive investment in one's life. This, of course, runs contrary to what happens in many contemporary work situations.

Could one expect that such a change might be mapped out in the course of a weekend session by young employees with low levels of education who, until then, had tolerated rather than enjoyed their work situation? Nobody expected it, but the successful parallel existence of a semi-autonomous group in the frozen food section of the company might have stimulated hopes and hidden the dissimilarities between the two situations. We have already alluded, for instance, to unit size as a possibly important influence. The frozen food employees, numbering around 25 people, were recruited on a voluntary basis and came to a new plant on a new site. The Cardinal warehouses presented an entirely different set of circumstances.

The need for more intense training before attempting a QWL change in the warehouse might also have been more apparent if it had not been for the seeming simplicity of the technology characterizing warehouse operations. In these circumstances, all the weight of stabilizing their new behaviours and responsibilities was placed on the employees themselves. The apparently unsophisticated technology also may have left the road open to unrealistic expectations for quick and easy changes in the minds of those involved in the projects. Such hopes for the quick fix, for instance, would hardly be expected in a car factory or a steel plant. There, the very presence of impressive rows of machinery would tend to dampen expectations of easy success. In fact, in such a situation raising people's expectations might create a serious problem.

It becomes obvious that in situations where behavioural, knowledge, and attitudinal changes make up the bulk of the projected innovations, a high level of initial training and support has to be considered. Involving people in changes without the proper acquisition of new capabilities is likely to lead to oversights, failures, and frustrations. Wherever frustration occurs, it is also likely to promote aggressive behaviour and mistrust. Of course, one might attempt to deal with these symptoms through therapeutic interventions, but these likely will have minimal impact in a work situation where delays are short and interactions among workers and managers frequent and intensive.

This case also suggests the need to clearly conceive and define the new role of foremen in any changed situation. In the small warehouse, the new role of the foremen emerged (on a behavioural level) in parallel with that of the workers. By contrast, in the large warehouse the situation remained a "we-and-they" or an "all-or-nothing" situation. Abrupt changes in routines were desired by the employees but no appropriate role developed for the displaced foremen. Instead, their attempted assistance in the change process was labelled as "intrusions" or demonstrations of "lack of trust" in the employees. In view of our earlier observations about the overlooked training needs preceding and accompanying this change effort, the displaced foremen could have provided major facilitation in this area.

NOTES

[1] He returned for the plenary session on the closing day.

[2] This decision was simultaneously announced to the main warehouse employees; the same practices could be extended there provided the necessary preliminary work was done.

APPENDIX I

CARDINAL DISTRIBUTORS LTD.

- Employees' proposals for the QWL project -

This report has been prepared by a committee representing employees in Cardinal Distributors Ltd. It must not be equated with a global proposal on QWL, but is a concrete approach to the transition to the actual system of work. Each proposal should be studied independently so that we can have an early feedback.

Proposal No.1

Each assembler should fill up orders for the same stores so that he will get feedback from these stores. At the beginning of the change, each assembler could visit the stores in order to identify particular difficulties related to his work. The pairing of assemblers and stores should make it easier to meet the deadlines.

Proposal No.2

There should be 3 "intercoms" in the warehouse to facilitate contacts between assemblers and lift truck operators. Ideally, they should be placed at: (1) the door near the B room, (2) at the end of P 5 between the P and the VS, and (3) at the end of F 8 near the D 6000.

Proposal No.3

Heavy or big items should be handled by two persons.

Proposal No.4

A representative from Michel Jasmin and another from Hickmore should meet with the stores' managers to discuss problems related to: (1) the goods that are sent back to the warehouse, and (2) the shipping operations, etc. This meeting should be held after stores' managers have become knowledgeable about QWL.

Proposal No.5

Each assembler should be assigned a Jigger. This should reduce disorder in peak periods.

Proposal No.6

Coffee breaks should be called before but not after the prescribed time. If an urgent task is being performed they should finish it up before the coffee break (e.g., not to slow down drivers).

Proposal No.7

Schedules of work should be changed to accommodate a 4-day workweek.

The 4-day workweek at Hickmore

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
LIFT TRUCK OPERATOR	Bertrand	Bertrand	Bertrand	Bertrand	Jean
REPAIR	Bertrand	Jean	Jean	Jean	Jean
ASSEMBLER	Kenneth	Kenneth Simon	Kenneth Simon	Kenneth Simon	Simon
STOCK-PLACING	Paul	Paul	Paul	Paul	Paul
SHIPPER	Maurice	Maurice	Maurice	Maurice	Simon
CLERK	Pierre	Pierre	Pierre	Pierre	Pierre

- Notes -

Receiving should be scheduled for Tuesdays through Thursdays. Bertrand will be able to work on Mondays in the repair section and Simon will be able to work in assembly or stock placing on Mondays. On Fridays, Jacques would only have the overstock to bring down (a two-hour job) and would work for the remainder of the day in the repair department.

- The 4-day workweek at Michel Jasmin -

Receiving

Mondays and Fridays - one door receiving between 8:00 and 6:30. Other days - two docks available between 8:00 and 6:30.

Assembling

Assemblers will work in two groups. The first one will be on duty Mondays through Thursdays between 7:00 and 5:30.

Shipping

One shipper will begin to work on Monday and the second on Tuesday.

Lift truck operators

Operators will be scheduled in two groups. Each group will include an assembler and an operator to work at receiving. The first group will work from Mondays to Thursdays and the second group from Tuesdays to Fridays. Each group will work 4 days, between 7:00 and 5:00.

Caretaker

He will work from Monday through Thursday between 7:00 and 5:30. Friday's work will be completed on the next Monday.

Clerks for lay-out and orders

These two employees will have to arrange their day off so that one is always present on each work day.

Stock-placers

These two employees will have to arrange their day off so that one is always present on each work day.

Absence clerk

The clerk will have to take his day off in the middle of the week; on Mondays and Fridays he will have to replace the packing clerk or the stock-placer.

Clerks

A schedule has yet to be prepared.

Jewellery section

A schedule has yet to be prepared.

Note: In the peak period (July - December) it may be necessary to revert to the old schedule of work because of a possible shortage of equipment.

Proposal No.8

The battery department should be relocated to improve shipping. This relocation entails expenses proportional to the expected lifetime of the warehouse.

Proposal No.9

The following proposal, by Hickmore employees, is concerned with work involvement.

Assembler

The assembler should have full responsibility for planning his day's work. He can possibly divide the Damaged Goods sections into two areas.

Lift truck operator

The operator has the responsibility to transfer over-stock items from Hickmore to Michel Jasmin, and maintain his equipment.

Repair

The repairman deals directly with the suppliers without going through the buyer.

Shipping

The shipper will be responsible for sending back surplus merchandise to the suppliers.

Driver (mail trucks)

The driver should be able to modify his schedule to take into account the peculiarities of the day and week.

Proposal No.10

Deliveries from Hickmore should be made by Hickmore's drivers.

Proposal No.11

All deliveries in Cardinal stores should be made by Cardinal drivers.

Proposal No.12

The lay-out of the parking area should be modified to facilitate truck handling.

The Committee

PARTICIPATIVE WORK DESIGN AND SUPERVISORY PROBLEMS

by

Moses N. Kiggundu

ABSTRACT

This cases describes the efforts of a manager to revitalize the group pension office of a large insurance company. The majority of the jobs were simple, routine, and lacking in challenge, while the supervisors might be described as unpromotable. The new manager introduced a number of changes--transferring the supervisors who resisted change, altering the structure of decision making, training new and old staff--to improve in the organization's design and personnel satisfaction. The success may have hinged on the manager's personal abilities, since the organization design began to revert to its original shape after her transfer.

INTRODUCTION

Beaver Life Insurance Company is one of Canada's largest insurance companies. With assets of almost $6 billion, the company ranks among the top twenty insurance companies in North America. As the company's total business grew in both volume and complexity, so did its work force. In 1977, the total head office work force stood at 1 260 and was growing at a rate of 20% to 25% per year.

Beaver's group pension organization is responsible for all the company's group pension business, and is divided into three functional areas: actuarial, marketing, and administration.

The actuarial department is responsible for making sure that the company's pension product lines are consistent with established levels of risk and legal requirements of the various jurisdictions where the company does business. The marketing director is responsible for marketing the company's existing group pension product lines, identifying market needs and developing new services and plans to meet current and future market demand. The director of administration is responsible for the administration and servicing of the plans once they have been sold, and as long as they remain on the company books.

The functional differentiation of the organization has led to different orientations among the company's three divisions. For example, the divisions have traditionally recruited senior staff from different backgrounds. The actuarial division is naturally staffed by actuaries and actuarial students. The marketing division tends to hire people with extensive field experience, who are well known and respected by clients. Such people tend to have little or no experience with head office operations and politics.

The administration division has, for the last twenty-years, been staffed increasingly by managers with computing and data or word processing backgrounds. Most have come up through the ranks of the data processing department, starting as programmers or systems analysts, then moving into the supervisory and managerial ranks. They have little or no appreciation and experience of the mainstream insurance business of the company. These three functional orientations make it difficult for the vice-president to run the group pension organization as a well-integrated whole.

The Southern Pension Group Administration Department (SUD) was established about 20 years ago to carry out Beaver's responsibility of providing all administrative and service functions in the southern region. It has about 1 500 pension plans, sold mainly to small employers. The average plan has fewer than 1 000 policies.

The company's product lines in this market include investment and annuity plans. Investment plans involve pension investment-money purchase, deferred profit sharing, and split-funded plans. The annuity plans include guaranteed group, single premium (one-shot) group annuity, and fully guaranteed insurance products (group life income).

At the beginning, Beaver was active and successful in selling these product lines. However, during most of the 1970s, little new business was added and very few new product lines were successfully introduced. The lack of growth and the small size of the plans affected the management of SUD for most of the 1970s. One problem was that most of the plans were custom-made to suit individual clients' needs, the administrative functions were manual and complex. Consequently, the average administrative costs were among the highest in the company. During this time, SUD suffered from neglect and the company was not sure what to do with the department. Some senior managers wished they had never gotten into the market in the first place.

In the long run, the marketing division affects the nature and volume of SUD's work. The more the former sells to the southern region, the more administrative service SUD has to provide in order to conserve the plans (i.e., keep them on the company books). On a day-to-day basis, however, most of SUD's work originates from a variety of sources including the employers of the policy owners, brokerage firms, company branches, lawyers, banks, and other financial institutions. Unlike the northern region, SUD's region did not have group field officers, and Beaver's branches were neither keen nor able to provide effective administration to the clients. Consequently, all the administration had to be provided from head office by SUD.

One would expect that once the plan has been sold, and as long as it remains paid up, not much else need be done. However, in practice a lot of administrative work is required to keep the plan active and up-to-date. Due to the competitive nature of the market and the ease with which employers can switch from company to company, the quality of these administrative services largely determines the company's ability to conserve the plans it has already sold. Plan conservation is very important, especially since most of these plans do not make money until they have been on the books at least five years.

The work of SUD involves processing various transactions requested by the clients. These transactions may require amendments to the plan (e.g., additions, transfers, termination), anniversaries, death claims, cash account transfers or simple requests for information (e.g., price quotations, plan regulations, administrative procedures). The most recent training manual lists 46 different transaction types, each with different procedures and standard execution times. Most of the transactions are of a clerical nature involving copying, computing, compiling, and analysing information or data. The requisitions are received, logged in the computer, and screened for distribution to various individuals in the department.

These functions are carried out by one of the most experienced employees, who has the background knowledge to understand the nature of the requisition, the transactions associated with it, and the units or individuals in the department with the technical skills and authority to execute the required transactions. The transactions are then checked for accuracy and consistency with company and plan regulations before a formal response is sent to the originating client system. Administrative support services of data/word processing, typing and filing are provided at the appropriate stages in the work flow. In addition, several head office work areas outside SUD may also be involved, depending on the nature and complexity of the transaction. For instance, requests for price quotations may involve the actuarial, marketing and underwriting departments, while complex death claims involve the legal department, claims and, perhaps, senior management.

The majority of the jobs in the department are simple, routine and lacking in challenge or motivation. In the mid-1970s an attempt was made to revitalize the business, and a decision was made to computerize the plan administration. Since most of these plans had been sold on an individualized basis, most of the transactions were not standard across plans and, consequently, the resulting computer system was complex. Staff was not properly trained on the systems application, and the results were frustration, low morale, more administrative problems and higher costs.

In the wake of this computerization, there were various attempts to change SUD's structure and job content. A great deal of management effort went into these attempts but the results were minimal. Instead, the jobs remained characteristic of a paper factory--single-skilled, low-level processing, mechanical and routine. These routine processing jobs offered no opportunity for employee motivation through participation in decision making, problem solving, autonomy, and goal setting by way of performance feedback.

The employees experienced high levels of anxiety and stress. Though the individual transactions were simple, the volume of work was always high and since the employees were not properly trained, organized or supervised, they always took longer to complete their work than the established standards. This caused large volumes of work to accumulate. Pressures from powerful clients also contributed to work stress, since they continually phoned to complain about work delay and bad work. The computer was another source of anxiety for the employees. Most of the employees were not adequatley trained to use it effectively in their work. Instead of being a problem-solving tool, the computer was viewed as a threat to people's jobs and established methods of work. Even those who had a working knowledge of computer applications adopted "patch-up" methods of problem solving with little regard for the integrity of the total system. Morale was very low. As one computer specialist in the company put it:

> A lot of people do not have the skills to do computer work. They lack initiative. When the computer is down, people just complain without bothering to find out what is causing the problem. When the computer is not working 100%, people tend to avoid using it. They have worked with systems for so long, yet they don't know much about it. The computer phobia in this place is widespread.

This paper describes efforts to resolve some of these organizational problems. It describes a program of participative work design addressing the problems of supervision, and summarizes the key outcomes.

THE ASSUMPTIONS BEHIND THE CHANGE

SUD has a history of poor management and supervision. The department changed managers every two years, and those leaving "weren't going to greater things either". In the minds of many Beaver managers, taking up the management of SUD was the "last stop to oblivion". This made it difficult for the department to attract good managers, although it needed good management to get out of its doldrums. The frequent turnover of managers was largely responsible for the general lack of stability, consistency and sense of purpose and direction which characterized the department.

Supervision was not great either. The company had no formal supervisory training program. Instead, management was locked into a curious debate as to whether supervisors should be generalists or specialists. Specialist supervisors would tend to come from within the same or similar work areas and have the skills in the technical work. On the other hand, generalist supervisors would come from various departments, since they were to spend most of their time supervising others rather than working on the same tasks as their subordinates.

Although a decision had been made to use generalist supervisors in SUD, the incumbent supervisors were all specialists, largely because the department could not attract supervisory staff from elsewhere in the company.

There were forces from inside and outside the company that collectively contributed to the creation of an atmosphere conducive to change. Figure I is a diagrammatic representation of these forces and their interrelatedness. Inflationary pressures of the mid-1970s and the changing market conditions leading to greater competition in the industry combined to raise the company's administrative costs. This, in turn, led to the need for new technological and organizational methods to control costs. Beaver was one of the first insurance companies to get into computerization of administrative functions in a big way.

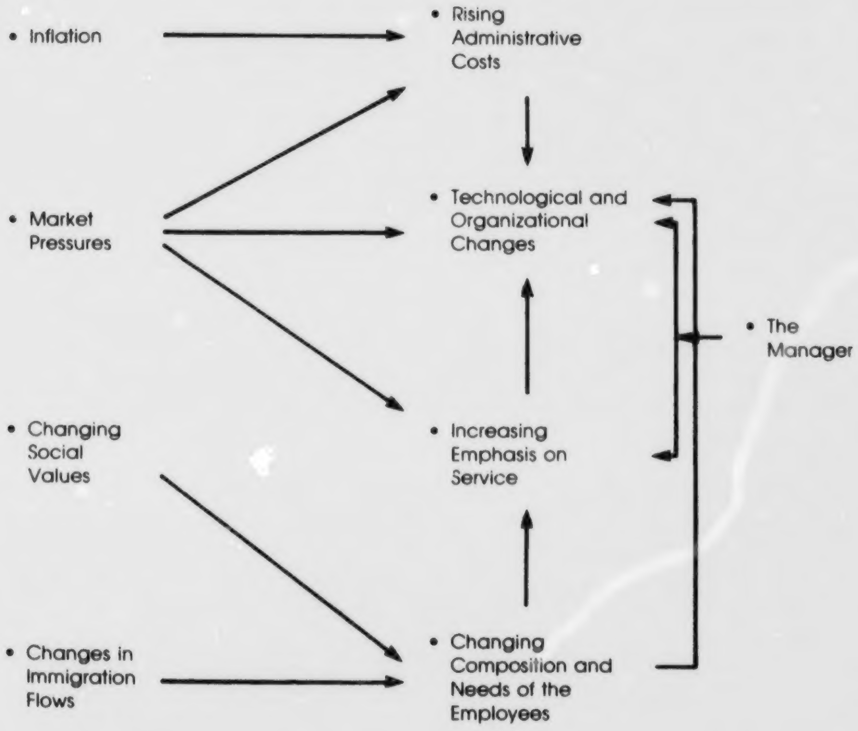
It seemed that employees' needs and values were changing due to higher education and standards of living of the general population and declines in immigration from other countries. Most employees were no longer content with clerical, single-skill, and low-level jobs devoid of challenge or involvement in decisions affecting their work.

A combination of increased market pressures, rising employee expectations, and the manager's insights led to a greater emphasis on providing clients with quality service, rather than merely processing administrative transactions as an end in itself.

SUD Gets a New Manager - With a New Mission

In February 1978, Pamela Anderson became the new manager of SUD. For the previous three years she had held various staff jobs including the prestigious, high profile, and influential position of director of personnel. What she came to was, in the eyes of most employees, a low profile, low status, dead-end job in a department that had an uncertain future, a bad history, low morale, poor productivity, high costs, and managerial neglect.

FIGURE I
THE FORCES OF CHANGE IN SUD


• Inflation
• Rising Administrative Costs
• Market Pressures
• Technological and Organizational Changes
• The Manager
• Changing Social Values
• Increasing Emphasis on Service
• Changes in Immigration Flows
• Changing Composition and Needs of the Employees

→ = Direction of greatest influence

Why did she make the move? She explains:

I came here with a mission--a kind of 'Love Canal' clean-up mission. I wanted to turn this whole thing around and make SUD and all its employees winners, rather than perpetual losers. This was a real challenge and I needed something that difficult to keep me busy. This was my first line-management job. As director of personnel, I had a difficult time convincing line managers that there were alternative and better ways of organizing and managing an insurance company instead of running it like a paper factory or machine bureaucracy.[1] They did not listen. Most of them are 'one best way' managers and I could never get through to them. Part of the challenge for me was to show them that my ideas of developing an organization through human resource development, rather than robots or mini-computers, were not only more socially responsible, but also good business.

I did my preparatory homework and talked to a lot of marketing people in the field. From this, I realized that the future growth potential for Beaver was in group, rather than individual business. Naturally, SUD was the place to be.

Don't forget that Beaver is a very patriarchical company. The women do the work and the men manage it. I have always had a love-hate relationship with my male fellow managers. On the one hand, I knew that my eventual success depended on their support for the assistance and resources that I needed to do my job. On the other hand, I was well aware of their weaknesses, incompetencies, back-stabbing and misuse of organizational power and authority. I wanted to show them a more effective alternative to all this.

I also knew that this was a job where I could only succeed. All my predecessors had failed to make any significant changes. Nobody expected me to succeed either. This provided extra incentive for me. If I failed, it could all be easily blamed on

> the department and all its insurmountable problems. On the other hand, if I succeeded in bringing about some improvements, however modest, then this would be considered remarkable.

The new manager came up with a 13-point mission statement for SUD. She explained the main objective of the mission as providing quality and timely, cost-effective service to the clients. This was to be achieved by reorganizing the department, developing technical and administrative personnel to provide advice to the clients, and monitoring the various internal and environmental changes that affect the administration and development of the business. As she put it:

> From now on, the general movement is from product administration to total plan administration, or put another way, moving from processing the business to servicing it. This is a service client-oriented mission.

She further defined service as: 1) becoming aware of who SUD's clients are (agents, branches, policyholders, etc.); 2) defining performance standards to meet particular clients' needs; 3) meeting the standards in a timely, cost-effective and quality manner, and 4) conserving business by being aware of competition and providing competitive technical and administrative expertise.

Emphasis on quality service was the manager's central theme. She saw this as Beaver's best strategy, both as a socially responsible corporate citizen and as a competitive financial institution. Improved service required well-trained, highly motivated and responsible employees. She believed that quality service cannot be provided by a machine bureaucracy. Rather, one needs a structure based on the principles of autonomous work groups in which the employees care about themselves and the consequences of their work.[2] This is what she wanted to see in SUD and she realized that this would enable the employees to enrich their jobs, take on more responsibility and improve the image of the department.

She believed strongly in the development of people and the creation of opportunities for employees to improve their skills, effectiveness and quality of working life.

She also saw emphasizing service as good business. The company's competitive advantage would be greatly improved if it could provide better client service at the same or lower costs than the competition. Contrary to other managers, she saw the relationship between service and technological and organizational changes. Senior management, especially those who came up through the data processing department, believed that the way to control rising costs was to computerize as many administrative functions as possible. They felt that employees need only do tasks for which the computer provides no cost advantages.

The new manager saw it differently. For her, computerization of transactions was only beneficial if it improved the department's capacity to provide quality client service. As she put it:

> Technological changes predicated only on cutting administrative costs at the expense of our service delivery system must, in the long run, be doomed to failure. I believe that a large part of our increases in administrative costs is a direct result of poor service. Our challenge, as I see it, is to find new organizational arrangements3 which would improve productivity while raising our levels of client service. We cannot succeed in this without better organization and utilization of our staff. Computers cannot do it alone.

These were her primary work values and beliefs.

The Supervisory Problems

As soon as she took over the department, the manager started a series of managerial audits and sensing activities aimed at identifying its problems and strengths. At first, the manager asked two internal organizational development (OD) consultants to assist her in the diagnosis. It was necessary to use these consultants because the employees, most of whom were not used to being asked to express their opinions about the management of the department, were reluctant to open up to the manager and discuss the department's problems with her. The consultants spent about three months interviewing employees, managers and clients of the organization. They then organized a one-day feedback workshop in which they explained to the manager and the employees their findings and their proposed solutions.

However, the manager and her employees were not satisfied with the consultant's diagnosis and feedback. They did not find the recommendations for action specific enough. The manager, therefore, hired two external consultants to carry out a more complete diagnosis of the department. One consultant spent a day in the department doing a sociotechnical systems analysis of the department and its work flow. The other one spent several weeks interviewing the employees and management of the organization and administering a questionnaire to to the SUD employees. The diagnosis was carried out with the consent and participation of the employees.

Using the results of the diagnosis, the manager was able to identify a number of problems facing her department. First, the existing structure was not appropriate to meet SUD's new service-oriented demands. Second, she lacked the necesary personnel to do the job, as those already in the department lacked the skills or motivation for added responsibilities. Third, and most distributing, the two supervisors in the department were most ineffective. Those jobs had been conceived as generalist supervisory roles with 75% supervision and 25% technical duties. The incumbents had received little or no supervisory training, however. Since they did not keep up-to-date with the day-to-day technical operations and knowledge of the various plans on the books, they were not particularly helpful in providing functional supervision to the clerks. Instead, they created a "capping effect" by depriving their subordinates of the opportunity for independent thought and action. They exercised close supervision.

The supervisors were also most resistant to change. Referring to the new manager, one of the supervisors put it this way:

> She made some sweeping changes: put women in control of the department and suggested things not consistent with what the branches would go for. Her new ideas were frightening because the branches are very strong. She transcends traditional lines to get whatever support she needs. She wants to cut costs by 40%, increase sales, introduce new products, reduce the crisis state of the department, and make SUD bigger and more prominent. But how is she going to do all this before the floods are at her door? People are saying 'show me'.

The manager perceived another reason her supervisors were not willing to see any fundamental changes in SUD. She quoted Rosabeth Moss Kanter:

> Unpromotable supervisors ... may try to retain control and restrict the opportunities for their subordinates' learning and autonomy. The current job is their only arena for power, and they anticipate no growth or improvement for themselves. Moreover, they have to keep control for themselves, so that it will be clear that no one else could do their job. Subordinates must be forced to exercise their skills as narrowly as possible, for a capable subordinate represents a serious replacement threat.[4]

The manager, through observation and conversation with the consultants, had come to believe that her supervisors constituted a serious obstacle to implementing her service-oriented program. She saw them as feeling insecure about their ability and lack of motivation to learn new skills. Her conversations with the individual supervisors confirmed that they had never been eager to take supervisory jobs but had done so because they had no other route for promotion. She believed that training them would not suffice because these individuals did not want to be supervisors. If improving peoples' quality of working life includes giving them jobs consistent with their skills and interests, then keeping these supervisors in their present jobs would not improve their quality of working life.

The manager was faced with a dilemma. She needed people to help her implement her service-oriented program. She did not want to create more morale problems by firing people as soon as she had come into the department. Moreover, if she lost those supervisors, she could not easily replace them, because Beaver had very few supervisors who could fulfill the supervisory roles she envisioned. Those few Beaver supervisors who were competent or potentially competent and motivated to do the job were not about to jeopardize their careers by joining SUD.

Problems with Non-Supervisory Employees

The non-supervisory staff also posed problems for organizational change and development. They had been doing single-skill, low level processing jobs for many years. Many had come to like it and feel comfortable. Any organizational changes would require them to upgrade their skills and take on more responsibility. It was not clear whether most of them had the ability and motivation to learn new job skills and take on bigger jobs. When the computer was introduced, most of them had not acquired the necessary skills. Was it the people, or was it a question of poor training?

One member of the department had the answer when she said:

> It seems that the people are part of the problem: their attitudes, skills or lack thereof, low levels of motivation, powerlessness, non-cooperativeness, need for direction, single focus on job points ... do not make them prime breed for complex jobs.

There were serious doubts as to how much the employees were able and willing to take on more responsibility for their work. One of SUD's technical specialists saw it this way:

> The biggest problem is moving from a structured to a less structured environment. In the past people have had things laid on them without questioning. Management encouraged and practised non-questioning management. Now you are asking people to speak up and be responsible. I don't know how much you can teach people to operate in these two different environments.

There was a great deal of cynicism among the staff about the proposed organizational change. Most of the employees had worked for Beaver 10 to 15 years, all of these in SUD. They had seen many similar attempts to introduce organizational change end in total failure. They had seen many managers come and go. They believed in the "ginger-up" theory whereby the new manager stirs things up, causes a little excitement, and eventually cools off just in time for a new one to come in. As the manager put it:

> It took them time to accept that I was going to be here for a while and that I was not interested in "gingering-up" things but wanted to bring about lasting fundamental changes to the department.

Most of the employees privately believed that sooner or later she would go away and things would "return to normal". They believed the task was so insurmountable that she would either "burn out" or simply leave. They knew the problems of SUD would not disappear; they had learnt to live with them and hoped that their manager would eventually do likewise. The nature of the problem is illustrated by the following dialogue, which took place shortly after the manager had taken over the department, with Tim, a long-term clerical employee of the department:

> Tim, what do you think of the work you do?

Think! I am not paid to think. That's management's job.

Oh! Mr. Tim Short, what then are you exactly paid to do?

Exactly what you tell me to do.

SUD's image was extremely poor in the eyes of most head office departments as well as in the field. Most of the employees in the department were seen as "losers". Field personnel in the southern region had stopped selling pension plans because of poor administrative service from SUD. Feedback from the branches regarding SUD's performance was always negative and often condescending.

Before deciding on a specific course of action to bring about the desired changes in the department, the manager talked to fellow managers, organizational development consultants and her own employees. She decided that in order to achieve her objectives she would have to reorganize the department and design its structure along the lines of autonomous work groups. Her decision was based on several considerations.

First, during the sociotechnical systems analysis of the department, one of the consultants found that the employees in SUD had very little control over the key variances affecting their work.[5] In order to improve client service, it was necessary to create a more flexible and responsive structure in which each work group would be responsible for the detection, control and management of its own key variances, rather than having them managed by others outside the department.

Second, the manager wanted to address the problem of the employees having simple, routine jobs. To remedy this problem, the manager believed it was necessary to give employees more responsibility and authority to provide more complete and direct administrative services to the clients. She saw this as a way of creating opportunities for her employees to acquire new skills, improve their chances to do more interesting work, and move up the organizational hierarchy.

Third, in addition to improving her employees' career prospects, the manager saw the new organizational design as a way of improving their quality of working life. By allowing them direct contacts with their respective clients, rather than going through the supervisors, the manager believed that she was giving them more autonomy and the opportunity to do more meaningful work. Direct contacts would give them valuable information on how well they were doing their work and how it affected the work and lives of their clients. She also hoped that as the employees became more skilled and experienced in performing administrative tasks, they would eventually take on some of the supervisory functions of their respective work groups. The manager believed that these new job attributes would contribute to a better quality of working life for her employees.

However, the managerial audits clearly indicated that there were serious challenges and impediments to the implementation of her reorganization plan. First, she realized that her supervisors did not have the skills or interest necessary to perform in autonomous work groups. The creation of autonomous work groups results in significant changes in the nature of supervision. Supervisory changes result in a shift of emphasis from the traditional functions of tasking, scheduling, checking, etc., to the two basic functions of (1) training and developing employees to acquire the necessary technical and social skills, self-confidence and motivation to operate as a self-regulating work group, and (2) helping the work group manage its boundaries and interdependence with other work areas. These new roles require new skills, more confidence and motivation, and greater support for the employees from the manager and supervisors than under a traditional organizational structure. As it turned out, the supervisors were neither willing nor able to provide the training, coaching, coordination and support the employees needed to meet their new challenges. Consequently, the manager lost her supervisors. With her help, they moved to other areas within the company.

The manager's second problem was associated with the employees themselves. Since these employees were used to doing simple jobs under close supervision, they did not have the skills to do all the administrative transactions required to provide complete service to the clients. Moreover, they were not used to handling responsibility. With the introduction of the autonomous work group structure, they were expected to make important decisions affecting their work and directly negotiate service and delivery requirements with the clients. They were expected to do all this with minimal supervision.

The manager realized, more than ever before, that she might have embarked on an impossible mission. She lacked the personnel to implement her ideas both at the operating and supervisory levels. However, she was not going to give up. As she put it:

> We had reached a point of no return. We had to do the best with the little we had. I went around in other departments and persuaded good people to come and join us. At first, people did not want to talk to me. But in a large organization like Beaver, I knew I could find many capable supervisors and administrators who were being frustrated by their bosses. Would you rather work for a lousy boss, or would you be willing to forget the history of SUD and come and join us in a most challenging and innovative department? Some people got excited and joined us. The word started spreading and recruitment became a little easier.
>
> I also recruited outside the company. Our training unit was now operational and we hoped they would provide our new hires with the necessary technical training before coming to the floor and joining their respective work groups.
>
> I did not know how things would turn out. I was committed to improving service and cutting costs. I had moved people around, brought in new employees, started various training programs, restructured the department and, above all, lost my supervisors. We aroused a lot of interest and everybody was waiting anxiously to see what would happen. Some were predicting and privately hoping for total collapse.

THE INTERVENTIONS AND CONSEQUENCES

A number of intervention methods and activities were used in order to bring about the required changes in SUD. The timing and duration of these activities are shown in Figure II. Some of these methods were theory-based and planned ahead of time. However, there were activities which happened fortuitously. This section describes the major interventions used and the rationale, if any, behind them.

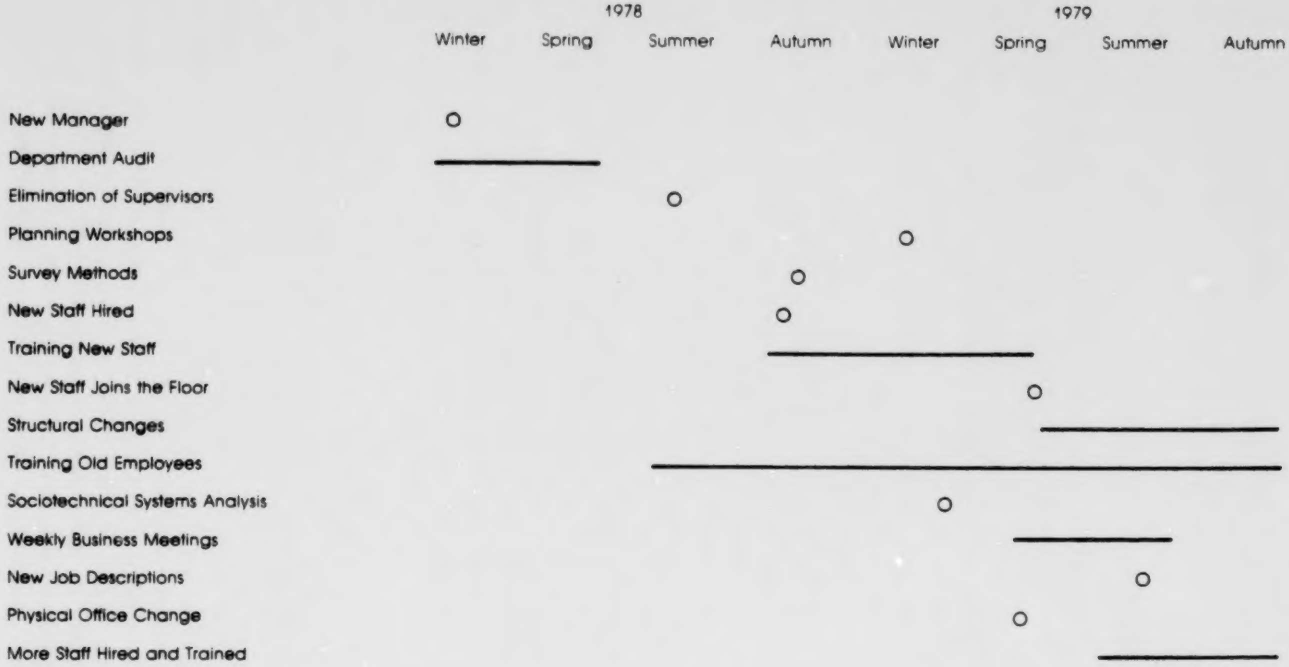
The first intervention was the arrival of the new manager determined to bring about major, systematic changes in SUD. The second intervention involved a series of managerial and organizational audits investigating the strengths and weaknesses of the department and its personnel. This included analysing the business of the department, its organization, and the roles and responsibilities of each of the employees in the department. It was during these audits that the manager realized the weaknesses of the department and the ineffectiveness of the supervisors.

The departmental audit was followed by the transfer of two supervisors from the department and the failure to replace them, resulting in a period of almost two years without supervisors in the department. This case is mainly concerned with the elimination of the department's supervisors and its effect on the organization.

The planning workshop was designed to explain to the employees the new mission of the department, and the steps the manager was planning to take. The employees used this one-day event to express their concerns and get to know the manager and one another better. The manager used it to sell herself and her ideas to the employees, explain why the supervisors had to transfer, and clarify what she expected each of the employees to do both at work and in the training unit. This was a team-building and role-clarifying activity.

The survey methods consisted of interviews and questionnaires to assess attitudes and perceptions about various aspects of work. The questionnaire used was a

FIGURE II
INTERVENTION METHODS: ACTIVITIES, TIMING, AND DURATION



combination of the Job Diagnostic Survey[6] and the Michigan Organization Assessment Package questionnaire (MOAP) developed by the Survey Research Centre of the Institute of Social Research.

Job and Structural Changes

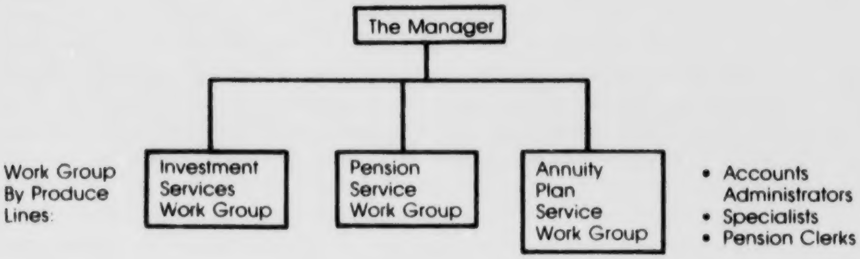
SUDs structure was changed from two supervisory sections to three autonomous work groups organized along client systems and product lines. Figure III illustrates the structural arrangements before and after the interventions. The new structure was considered more appropriate for SUDs new orientation which emphasized client service and multiple skills of the employees. Since there were no supervisors, and since the employees were expected to provide services directly to their respective client systems, the manager believed that it would be more effective for them to work as a group rather than individually. This would enable them to learn from one another, engage in joint problem solving, and take collective responsibility for their work.

Each work group had a coordinator who provided leadership, training and experience. Initially, this was the most experienced member of the group since the role required, among other things, screening, distributing and checking the work. In due course, however, this was expected to rotate to other members of the work group as they gained more knowledge, skills, and self-confidence. The group coordinator would, whenever necessary, provide functional supervision, but was not expected to perform personnel supervisory functions. Failure to recognize the fine distinction between supervisory positions and supervisory functions led some people in Beaver to comment that work group coordinators were "supervisors in disguise".[7]

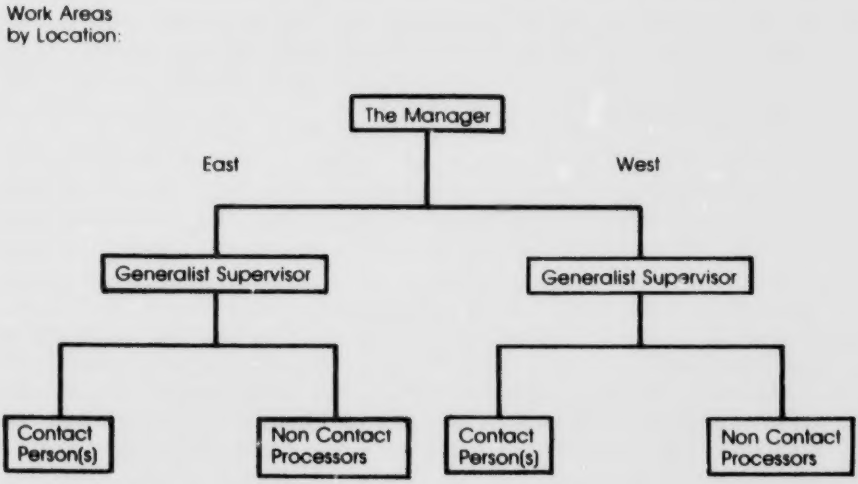
The jobs of the department were also restructured. The contact jobs were upgraded. They became the most important in each work group, both for processing the transactions and initiating and receiving direct client contacts. Each work group was supported by three specialists who were experienced in various administrative functions and several clerical employees who provided them with low-level administrative support. Neither the

FIGURE III
STRUCTURAL CHANGES IN SUD

CURRENT STRUCTURE


The Manager
Work Group By Produce Lines:
Investment Services Work Group
Pension Service Work Group
Annuity Plan Service Work Group
• Accounts Administrators
• Specialists
• Pension Clerks

THE STRUCTURE BEFORE


Work Areas by Location:
The Manager
East
West
Generalist Supervisor
Generalist Supervisor
Contact Person(s)
Non Contact Processors
Contact Person(s)
Non Contact Processors

specialists nor the clerks were attached to individual work groups. Instead, they consulted with each group according to the needs and priorities of the department.

Each work group was responsible for all the administrative and service functions of its product lines. Each group had, on average, five contact persons. Each contact person, called the accounts administrator, was responsible for a specific number of plans of one or more specific clients. The accounts administrator was responsible for all the transactions associated with those plans. The group was responsible for the overall performance of its product lines. On a day-to-day basis, however, each accounts administrator was mainly concerned with accounts. Pension clerks were to assist the accounts administrators, especially with the routine transactions. They were not to receive or initiate contacts with the clients. They were not assigned to specific work groups, but floated from one group to another according to demand. This job was expected to disappear in the long run, after more of the simple transactions, like billing, were computerized. The incumbents would then either train for the contact jobs or move to other work areas. These changes were expected to provide the employees with enriched and more meaningful jobs.

Staff Training and Development

The manager understood the importance of effective staff training for the success of her mission. If the employees did not learn new skills, they could not operate as an autonomous work group, nor could they provide better service to the clients or improve their own jobs. She therefore spent a lot of time planning the training for her staff. She wanted to create a multi-skilled work force so that each work group had enough people with the necessary skills to perform all the types of transaction for their assigned product lines. Figure IV provides an example of one of the planning worksheets she used to assess the quality and quantity of training and staffing for various product lines and employees. The manager did most of this planning without the participation of the employees because they were busy learning their new jobs. In determining the quality and quantity of training and staffing required, she used the company's job specification information and her own assessment of what constituted acceptable levels of performance.[8]

Figure IV shows the extent to which there is correspondence between the distribution of skills among the employees and the skill requirements of the work. For example, Product A constituted only 1.5% of the whole department's work by volume. Yet, 17 out of 23 employees had skills required to perform the transactions associated with that product. Product B, on the other hand, constituted 12.6% of the work by volume, but only 11 people were competent to do the tasks associated with it. Product C shows the most serious imbalance with 66.6% of the work by volume and only 10 out of 23 people able to perform its associated transactions. The manager used planning worksheets like Figure IV, taking each product separately, and using other criteria like quality, cost, and client expectations to assess the total training requirements.

Figure IV illustrates another problem rarely discussed in the literature on cross-training and multi-skilling of employees. According to the design principles of autonomous work groups, employees should be cross-trained to enable them to acquire skills necessary for a variety of jobs. The practical question facing any manager creating autonomous work groups is the extent to which employees are able to perform their co-workers' jobs. Using the work group coordinators as an example, the question is whether to train all three employees in all the five product lines, or just to make sure that two of them can coordinate any of the five product lines. Cross-training everybody would provide greater flexibility and personnel slack in the department, and increase its total capacity to perform all its varied tasks. However, it would also lead to under-utilization of skills, deprive staff of the advantages of specialization, and raise administrative costs. The manager was not sure what was the optimal multi-skilling of her staff. Explaining the dilemma, she said:

> Staff training remains one of SUD's most serious problems. We are not training our staff systematically, and perhaps we may never do so.

FIGURE IV

SCHEMATIC ASSESSMENT OF TRAINING REQUIREMENT

Employees and Experience Level	A	B	C	D	E
1. **Specialists**					
Abbot	o			o	
Adams	o		o	o	
Asch	o	o		o	o
2. **Work Group Coordinators**					
Atkinson	o		o		
Backman	o	o	o	o	
Baker			o	o	
3. **Accounts Administrators**					
Burtt	o	o		o	
Byrne	o	o			
Campbell	o	o	o	o	
Carroll	o	o			
Craig	o	o			
Cohen				o	
Dalton			o		o
Davis			o		
Dubin			o		
Duncan	o	o	o		
Scanlon	o				
4. **SUD Clerks**					
Scott	o			o	o
Smith	o			o	
Snow	o				
Strong	o				
Thomas	o	o			
Zimmerman			o	o	
% of Product by Volume	1.5	12.6	66.6	18.8	0.5

Note: 1. o indicates the employee is competent to perform tasks associated with that product.

2. The names used are fictitious.

> There are too many unknowns. You start with a certain number of slots to fill. You have to decide when to train whom and on what transaction types, product lines, client systems and level of complexity. When you are still figuring all that out, the uncontrollables happen. Some of your staff go on long-term disabilities or maternity leave. Others transfer to other departments. One or two will flunk the training test and will have to do it again. A few will simply quit on you ... and it goes on and on. You try temporary help, or, if you have the budget, you deliberately overstaff the area. But all these are short-term solutions. The fundamental problems of staffing a complex multi-product, multi-client, administrative service-oriented department still remain.

Other intervention methods are indicated in Figure II. A sociotechnical systems analysis of the department was carried out with the help of an external consultant and his assistants. Together, they spent a day in the department talking to the manager, interviewing employees, and analysing the department's work flow. These consultants used a five-step sociotechnical systems analysis and design which involved the participation of the employees and representatives of the department's interdependent work areas. According to this method, the analysis is made up of five steps:[9] (1) scanning the sociotechnical system of the department, (2) analysing the technical subsystem including identification of unit operations and key variances, (3) carrying out the variance control analysis, (4) analysing the social subsystem which includes analysis of internal role network, cross-boundary role networks and individual roles of the employees, and (5) redesigning the department according to the principles of sociotechnical systems.[10] The results of the analysis indicated that most of the key variances originated from outside SUD (e.g., field clients, head office interdependent work areas, etc.). The objective was to have these key variances detected, controlled, and managed by the employees within their respective work groups, so as to minimize their negative effects on the clients. Yet, neither the employees nor the supervisors were able to detect or control these variances.

Weekly business meetings were instituted for each work group. These meetings, which were attended by all the employees of each work group, were used to review performance reports of the previous week, set future performance goals, discuss common work and organizational problems, exchange information, and jointly make decisions on matters affecting the whole work group. Before the reorganization, only supervisors received performance data. The manager changed all that. A day or two before the business meeting, each employee received a computer-printed copy of the previous week's performance. This information was used to identify individual and work group performance problems and ways of solving them. At first, employees were defensive and reluctant to discuss their performance problems with their co-workers (as opposed to supervisors). However, with the help of the manager and an external process consultant, both of whom attended most of these meetings, the employees started to open up. They realized that the emphasis at these meetings was on problem solving rather than finger pointing.

These meetings helped create more cohesive work groups, especially since the groups were made up of both new employees and long service employees. The new employees had received formal training, especially in the processing of computerized transactions for the new products. On the other hand, the long service employees had more experience with the organization and administrative procedures of Beaver. Both groups needed each other in order to be effective on both individual and group levels. The meetings provided the necessary structure for them to interact and share work-related information.

Unless she was out town, the manager attended these meetings. This enabled her to discuss performance and other organizational problems with her employees. She also used these meetings as a mechanism for explaining her organizational objectives and encouraging employees to offer suggestions for achieving them.

Managing Without Supervisors

When she took over the management of SUD, the department had two supervisors (see Figure III), both of whom had come up through the ranks. What they knew best was processing transactions. One of them had strong pensions expertise and the other had a strong insurance background. They had had little or no formal training in supervision. They did not want to become supervisors but, as for many other low-level employees at Beaver, this was the only promotion available to them. One of the supervisors expressed these sentiments when he said: "Supervision is not important to me in the job. But if it were 75% technical and 25% people, then I would consider it. I don't like the personnel side of supervision."

These supervisors were not happy with their jobs for a number of reasons. First, the department's performance was rather bad, and management and the clients tended to blame most of the department's problems on the supervisors. This was natural since the department used to change managers every two years and the supervisors carried the burden of providing managerial continuity for the department. Second, the supervisors were not very capable. Over the years, they had not kept up-to-date with the technical aspects of the work they were supervising. Consequently, they became technically obsolete. This made them less effective in the department since they could neither provide superior technical assistance to the employees nor render good supervision. They became frustrated because they lacked influence and control over what motivated them and the employees they supervised. They could no longer be instrumental in the employees' achievement of their work goals.[11] Third, they were disliked by their subordinates who saw them only as "bossing" rather than providing the resources needed to get the work done.

Finally, these supervisors did not like the manager's structural changes. They did not like change unless it involved merely reshuffling the same pieces. They saw their main task as policing the business, getting involved in the actual work only when complex questions arose, and harmonizing the relations between the employees and irate clients. They did not want to give up their power and responsibility to the employees or share organizational information with them. They saw the creation of autonomous work groups as threatening their positions and undermining the authority and responsibility attached to their jobs. The manager made it clear to them that, in order to be effective under the new reorganization of the department, they would have to learn new skills and change their work behaviours and attitudes. They were expected to learn more technical skills associated with the transactions of the product lines assigned to their respective work groups. As coordinators of these work groups, they were also expected to learn the social skills for training and coaching other employees. As it turned out, the supervisors were reluctant to undertake this training, nor did they have the right attitudes for the new organization.

The manager encouraged the supervisors to work with her in reorganizing the department. But as she talked and listened to them, she discovered that their opposition to her plan was deep-rooted and unshakeable. This opposition was based on fear and anxiety about the future. The supervisors were, perhaps, afraid they might not be able to acquire the new skills the manager expected of them. The more flexible structure meant that authority within each work group would be based on technical competence rather than hierarchical position.12 If the supervisors did not acquire the necessary technical expertise, they would inevitably lose authority over their subordinates. The supervisors believed the manager's plans could not succeed. If the reorganization failed, the department would be in worse shape than ever before, and when the manager moved on to other jobs, like others before her, only the supervisors would be left to take the blame and pick up the pieces.

In the end, the manager let her supervisors go. She did this very reluctantly because she was aware of how much of a setback it was for her organizational plans. However, she was committed to improving SUD productivity and the other employees' quality of working life, even if this meant losing the only two supervisors in the department. When the supervisors left, the manager was unable to replace them. There were no suitable candidates who had the social and technical skills, as well as the values and interests required to work effectively as coordinators of autonomous work groups. Consequently, the manager found herself managing SUD without supervisors.

The elimination of supervisory positions received a lot more attention than any of the other interventions discussed above. It generated discussion and controversy both within SUD and elsewhere in Beaver. The consequences of this intervention will be discussed separately for each of the following: (1) the incumbent supervisors; (2) SUD's non-supervisory employees; (3) SUD's manager; (4) SUD's clients; (5) Beaver's personnel department, and (6) Beaver's other supervisors and managers.

1. The Incumbent Supervisors. The manager made sure that the two supervisors got jobs consistent with their abilities and interest elsewhere in the company. She helped the supervisors articulate their career interests and attempted to find suitable work areas. She did not want to victimize them in any way, she said.

> They are no worse than supervisors elsewhere in Beaver. It is not their fault that the company never prepared them for supervisory positions. My interest was not to punish them, but to give them the opportunity to move into something they really wanted to do. If you have to fire someone through no fault of their own, you have to do it as creatively and as humanly as you can. I understand they are very happy in their new jobs.

The manager sincerely believed that it was not possible to improve people's quality of working life if they were doing jobs that were not consistent with their values, interests or skills. These supervisors did not want to be supervisors in the first place, and they did not share her managerial values and philosophy. Thus, improving the quality of their working life meant finding them non-supervisory jobs with supervisors who shared their values.

2. SUD's Non-supervisory Employees. The management of SUD without supervisors had remarkable effects on the employees' morale, attitude towards work and job content. It created a climate where individuals had opportunities to learn new skills, and take on new responsibilities for their work. Even those who expressed reservations about what

was going on in the department could not deny that substantive changes were being introduced. As one of the employees said:

> When you come in on Monday morning and find there is no one to push you around, tell you what to do or look over your shoulder, you cannot fail to notice the difference. It is the most practical demonstration of autonomy.

Results of interviews conducted before and after the elimination of the supervisors indicated that all those interviewed expressed higher levels of morale and satisfaction with the way the department was being managed. They were particularly impressed with: (1) learning new skills and taking on more complex tasks; (2) initiating and receiving contacts directly with their respective clients rather than going through the supervisor; (3) working together as a team; and (4) receiving direct feedback regarding the consequences of their work.

In addition, they appreciated the opportunity to negotiate the design of their individual jobs, within their respective work groups. As employees increased their skill levels, they would take on more complex tasks. This had the effect of increasing the degree of fit between the demands of the job and the needs and rising skill and confidence levels of the employees.

The employees' attitude towards supervision changed significantly. As they became more and more involved in performing functions traditionally assigned to supervisors, they gained a better appreciation of the pressures, problems and dilemmas inherent in supervisory functions. They could no longer regard supervisors or managers as having unlimited power and authority over them. Working with equals, rather than under close supervision, had taught them to be more questioning and less subservient. Reflecting on this experience, one of the employees said:

> This has been an eye-opener for me. Even if I did not like this autonomy stuff, I have learnt a lot about myself and about the nature of work and

> supervision. I can now move on and use my experience elsewhere. Work will never mean the same for me.

It was expected that the elimination of supervisory positions would provide the manager with extra freedom to design more enriched jobs for the employees, and build a more cohesive self-regulating work group. There was in fact an improvement in reported job content, as measured by the Job Diagnostic Survey, in that the employees saw their jobs as more motivating than before.[13] This result can be explained by the removal of the supervisory capping effects. Employees were now responsible for planning and scheduling their own work, since there were no supervisors to do it for them. They were also responsible for receiving and initiating direct contacts with the clients. This enabled them to get more feedback about their own work. In addition, they were receiving copies of the weekly computer status reports with detailed information about where, in the production process, all logged transactions were, and whether they were overdue. Before these changes, only supervisors received these performance results. Frequent interactions with the manager, especially during the weekly business meetings, also made it possible for the employees to know how well they were doing both individually and as a group.

There were also improvements in these jobs according to the company's formal job evaluation procedures. The company uses the "Hay system" of job evaluation and has a broad-based job evaluation committee that is solely responsible for approving changes in job points. The manager was under constant pressure from employees to have their jobs re-evaluated, because they strongly believed that they were doing more work than the old job descriptions indicated. They felt underpaid. Accordingly, the manager asked the personnel department to write new job descriptions and initiate formal procedures for the evaluation of these new jobs.

The results were very encouraging. The SUD pension clerk job improved in job points by 23%. The accounts administrator, the basic contact job was upgraded by 17%. The work group coordinator job was formalized as the senior accounts administrator job with 44% job points above the accounts administrator, and 36% below the supervisory jobs. The employees' pay scales were adjusted to reflect the increased know-how, problem solving, and accountability in their new jobs.[14]

This was the most concrete single piece of evidence in support of the claim that supervisory changes in SUD would result in significant improvements in the employees' job content. Expressing her feelings regarding these results, the manager said:

> The results of the job evaluation committee were very encouraging, but not surprising. There was no question in my mind that my people were doing higher-level jobs than the money I was paying them. These jobs should have come up even higher, had it not been for the disappointments we received from the training unit. If the training these people received had been as effective as we had hoped it would be, they would have taken on more responsibility for more complex and important transactions. This would have given them more job points. However, we were generally satisfied with the results.

A survey of employees' attitudes showed that their psychological state, job satisfaction and motivation had not significantly improved. One possible explanation is that these factors have a longer time lag, especially when one is dealing with employees with a long history of debilitating conditions at work. But the manager had a different explanation for these results.

> The before-after results have to be interpreted with caution. By the time you ask the employees about their work the second time around, their point of reference has changed. Employee attitudes towards their work are very much a reflection of what they see and expect out of their work. After introducing all these interventions, you should expect the people to be less satisfied with what they have, not in comparison with what they had before, but with what they can potentially have.

3. SUD's Manager. Managing SUD without supervisors was a mixed blessing for the manager. At first, she was glad that she was able to pull it off. None of her male counterparts would think of doing such a daring thing. She felt good about herself for doing something nobody had the guts to do in the company.

Without the supervisors, she now had direct contacts with the work and the workers. This gave her a very good opportunity to learn more about the nature of the work in SUD, its problems, complexities and challenges. She also got the chance to work very closely with the employees, both individually and collectively in their respective work groups. She assigned work to them, worked with them to solve problems, evaluated their work, observed them, trained them, questioned them, challenged them and, at times, went to lunch with them. This gave her the opportunity to learn more about their abilities and motivation. Reflecting on this learning for herself, she said:

> I spent a lot of time on the floor. I got my feet wet in order to gain an appreciation of the work flow, its problems and key variances. I worked closely with all my people in order to understand their work, and know them individually. It is very important to know what makes your employees tick, and what frustrates them. I think every new manager should fire her supervisors so as to learn about what goes on inside the department.

There were also problems, however. The manager's job drastically changed as a result of having no supervisors. It became simply too demanding and required too many hours of work. First, her span of control more than doubled as all the employees reported directly to her. All the personnel functions became her responsibilities, including salary administration, performance appraisal, staff planning (holidays, sick leave, overtime work, hiring, firing, etc.) and training. Although this gave her the opportunity to make changes in these areas, which were consistent with her overall mission, it also demanded too much of her time.

She also became directly responsible for the management and control of the work flow, and its key variances. She found herself spending a lot of time working with the employees to correct errors, solve problems, and plan for anticipated problems. She also had to manage the boundaries between the work groups, as well as the boundaries between the work groups and their work areas and clients. All this was in addition to her managerial responsibilities: drawing up budgets, keeping in touch with the field clients, maintaining support from her boss and other important top executives, and consulting with other parts of the company on human resource management problems. She was putting in 12 to 15 hours a day, coming in as early as seven in the morning, and leaving well after seven in the evening. Her one hour of lunch break was usually spent discussing work problems. Whenever she was not on the road visiting clients in the field, she would come in on weekends, just to catch up with the mail and put in several quiet hours of work. This pattern of work was not common among Beaver managers.

The unexpectedly high workload was the result of two factors. First, the manager underestimated the importance of supervisors, especially in buffering the manager from activities and involvements at the operating level. Even if the supervisors are not competent, their mere presence saves the manager time dealing with routine personnel and maintenance functions. They can also act as "shock absorbers" and information screeners between the manager and the operating areas. This saves the manager time and headaches, and enables her to concentrate on the developmental aspects of her work. She was to find this out the hard way as she tried to be both manager and supervisor.

Second, the work groups did not pick up the supervisory functions as fast as had been expected. SUD was not a greenfield organization. Instead, it was a retrofit department with people in its hands. Naturally, you cannot do more or move faster than your people are capable of. The manager was having doubts as to the ability of her employees to function effectively within an autonomous work group. Some were slow in learning, others were not able to use their knowledge in solving work problems. The new employees were not as effective as had been expected. They complained that the training they had received from the training unit was either superficial or inappropriate. As one new worker put it:

> We found that we could not perform our jobs effectively on the basis of what we got from the training unit. Yet, Pamela and all other employees had unrealistically high expectations. They thought we could solve all SUD's work problems in just one week. When this did not happen there was frustration, disappointment and resentment. The manager was frustrated and resentful because we had not lived up to her expectations and the employees were resentful because we had had the privilege of being trained before the long service employees and yet we could not deliver.

As a result, the work groups were not able to operate as autonomously as the manager had planned. They were unwilling to take on personnel functions, and they were unable to deal with the more complex administrative transactions. Consequently, work began to accumulate and the manager was drawn more and more into the day-to-day processing operations of the department. She was finding it more and more difficult to have the time and orientation to concentrate on the long-term developmental plans of the department. The more she got involved in "firefighting", the less attention she paid to her mission objectives.

4. SUD's Client Systems. The common response from the branches and other field client systems is that "we don't care how you people run your shop, all we are interested in is that you get the stuff back to us in time and good shape". The manager wanted to change this and get them interested in the organization and problems of the department. She was convinced that the clients' interest was important for gaining an appreciation of SUD's problems and providing constructive criticism and feedback. She believed that this was very critical for SUD's evolution.

Traditionally, clients went directly to top management whenever they had a complaint to make about SUD. As one branch manager put it, "the only head office telephone number I keep is the one of the Group Vice-President". This tends to delay the process of providing the required service, since higher levels of management would have to pass requisitions down to the operating levels for appropriate responses and action. It also disrupts the smooth working of the department, as employees are forced to leave whatever they may be doing to attend to the "rush job from upstairs". It also causes morale problems as the employees feel ignored and bypassed when in fact they have the information to solve the client's problem.

The field clients used to justify their behaviour on the basis that calling supervisors was a waste of time since they did not have the required information and, unlike top management, could not shake up the system to get the work out. In fact, management reinforced this behaviour by reacting to the clients and giving them instant preferential treatment.

The manager wanted to change all this. She believed that the absence of supervisors worked in her favour as she started building direct relationships between the service contact employees and key clients. To achieve this, she used four different strategies:

(a) Started a monthly newsletter which she sent to clients with tips and information pertinent to the administration of their products.

(b) Designed monthly calendars with special dates and events relevant to the clients and their products.

(c) Designed free-standing desk leaflets showing the names and photographs of all the contact employees, their job titles and areas of specialization, and telephone numbers.

(d) Encouraged her employees to meet key client personnel either by visiting them in the field, or by meeting with them when they come to visit head office.

Previously, it was not considered necessary for these employees to have personal contacts with the clients.

In all these endeavours, she emphasized the idea of service and the need for both SUD and the clients to each do their part in bringing about improvements in service. The results were encouraging. The clients started calling SUD directly and identified service employees by name. A subsequent survey showed significant improvements in client satisfaction with SUD's level of service and responsiveness to client needs. Obviously pleased with these results, the manager said:

> Running a service operation is not the same as running a manufacturing plant. Client service satisfaction is more a concept of the mind, rather than objective performance. We have not improved our service times that much. In fact, in some areas we are just as bad or even worse than before. But we have improved our business image and the interpersonal relationships with our clients. When problems arise, we don't wait for the client to call. Instead, we initiate the call, explain the problem, and made a commitment to deliver within a time frame we can manage. We make sure that we keep our commitment. Previously, supervisors used to wait for the client to call about a service problem. In a state of panic, they would make unrealistic promises which the department did not have the capacity to meet. Whenever I meet our clients, I tell them that if they want quality service, they should not go over our heads, but come to the person with the solution. Nothing sells like service.

5. Beaver's Personnel Department. The personnel department's reaction to all this was one of guarded optimism. The department had paid lip service to innovative work designs, and although it provided seminars to managers on designing new work organizations, it was privately believed that no manager would undertake anything so radical.

As the interventions unfolded, the department started taking a keen interest. The reasoning behind this was simple. This intervention was owned and initiated by the manager. If it failed, the personnel department would not take responsibility for the consequences. However, if it succeeded, it would take advantage of it. First, the case was to be used as an illustration of the freedom managers have to take the initiative and introduce new methods of work organization and management. This would dispute the common managerial response that managers cannot introduce new ideas without the explicit approval of top management. Secondly, the department would use this as the basis for asking for a bigger training budget, especially to prepare supervisors and managers for the new and changing demands of their jobs. Finally, the department thought this would be good for employee relations. If some employees were unhappy with the way they were being treated, the department would promise them more autonomy, and this might reduce the talk in favour of unionization.

6. Beaver's Other Managers and Supervisors. Of all the happenings in SUD, the elimination of supervisory positions received the most attention from other departments. Managers and supervisors worried that SUD was creating a dangerous precedent of doing away with an important hierarchical level. Many believed that SUD's manager was conveniently cutting costs by eliminating supervisory positions. They feared that, if she succeeded, Beaver might be tempted to try it elsewhere. Others hated the idea because they did not want to deal directly with low-level employees.

In one incident, one of SUD's work groups decided to write a memo to the manager of a department with whom they were interdependent. Their memo complained about the quality and timeliness of the work they were getting from that department. They also made suggestions for improvements in both departments. On receiving the memo, the manager called Pamela and complained that her employees had no right to write to him directly, instead of using the established hierarchical channels of communications. He refused to give the memo consideration until another one signed by Pamela was sent to him.

The supervisors in other departments were concerned for at least two reasons. First, they believed that their careers as supervisors were in jeopardy. If SUD's manager succeeded, the company would come to believe that they were not indispensable. They would also be forced to learn new skills in order to manage autonomous work groups. Second, they were concerned that SUD's experience would have a negative influence on the people they supervised, thus making supervision much more difficult. As one seasoned supervisor put it:

> If this thing succeeds, it could cause a lot of chaos. Employees would get the wrong idea and begin demanding autonomy--whatever that may mean. I don't believe most employees are capable of handling autonomy. As supervisors, we have a job to do. Our job is to make sure that work gets done as timely and cost effectively as possible. Anything which detracts from that objective must be detrimental to our business.

EPILOGUE

In the spring of 1980, Pamela Anderson was promoted out of SUD. This was part of a wider reorganization of the group pension organization, which was undertaken in response to the board of directors' decision for Beaver to be more actively involved in the group line of business. Pamela's promotion was, according to the company's newsletter, "in recognition for her creative and energetic contributions to the development and organization of group business". At first, she was made director of marketing within the group organization, but within a period of six months she became an assistant vice-president in the same department.

SUD got a new manager who immediately started to reorganize the department once again. By this time, the company had introduced new product lines and hired additional staff. Moreover, more growth was expected as the company gave the group organization more emphasis and resources than ever before. Accordingly, the structure of the department was also changed.

First, formal supervisory positions were reintroduced. The manager retained the three groupings by product lines. However, each group was now placed under an assistant manager who was responsible for all the administration and development of one or several assigned product lines. Reporting directly to the assistant manager were specialists, senior accounts administrators, accounts administrators, pension clerks and data control clerks. The number of people for each of these positions varied according to the volume and complexity of the particular product line(s) assigned to that group. Clearly, this was a more hierarchical organization than the one Pamela Anderson had run.

SUD's business had grown very complex by now. First, the company had computerized the transactions and administration associated with the products, especially the ones newly introduced to the market. To deal with this complexity, the new manager created the job of senior pension systems Officer who, reporting directly to her,15 was responsible for advising all three operating areas on matters relating to the applications of accounting and data processing within their respective product lines. The second source of complexity resulted from changes in legislative requirements in different jurisdictions where SUD was doing business. These mandatory requirements affected the nature of the contracts and provisions Beaver could make with its prospective clients. In response to this, the new manager created the position of assistant manager who, unlike the other assistant managers, was not responsible for specific product lines. Rather, he was responsible for assisting the three operating areas with matters relating to drawing up contracts for different client jurisdictions, making sure the contracts and their administration were in accordance with all legal requirements, changing the operating and training manuals in conformity with changes in legislation, and training employees to be able to effect these changes.

The new manager exercised more control of the work flow and gave the employees much less autonomy than they had enjoyed before. The weekly business meetings were abolished, and although employees continued to received weekly performance status reports, these were no longer used as a basis for discussion and problem solving. Each of the work groups was now much more closely supervised by its assistant manager, and the employees lost most of the flexibility and participation they enjoyed under the autonomous work groups design. Direct contacts with the clients were now much more restricted and the assistant managers controlled most of the work and communications going out of the department. The employees received no more formal technical training since the training unit was closed down during the reorganization and its manager fired.

These changes did not sit very well with the employees of SUD who were losing their new-found autonomy. The long service employees got over the disappointment because they had seen similar changes come and go. However, new employees, especially those hired by Pamela Anderson, felt betrayed and angry. They had joined SUD with the understanding that they would be working in autonomous work groups. They saw Pamela Anderson's sudden departure and the subsequent structural changes by her replacement as a betrayal of that understanding. They were angry at Pamela Anderson for deserting them and at senior management for pushing her out of SUD before her mission was completed.

The employees were also concerned that loss of autonomy could result in a downward evaluation of their jobs, resulting in corresponding losses in job points and basic pay. At the time of writing, this had not happened. This was partly because the new manager was still trying out different organizational arrangements, each of which had different effects for these jobs, and partly because it usually takes awhile before the personnel department carries out all its documentation required for a downward reevaluation of existing jobs. It was generally believed that the new operating jobs in the department would be simpler and based more on single skills than would have been the case under the previous structure. These events made the employees disgruntled and some of them started looking for employment elsewhere. However, there were also those who stayed because the new emphasis and increased complexity still provided career opportunities for upward mobility.

As months went by, the emphasis of the department's structural problems changed from supervision and employee participation to the organization and "management of specialists" within a hierarchical machine bureaucracy. The basic question was how to effectively organize, deploy, and manage specialists in a hierarchical department whose main emphasis was on the functional performance of its maintenance tasks. A related problem was how to deploy the specialists for developmental, as opposed to purely maintenance functions of the department. The extent and nature of involvement of the specialists in the performance of supervisory and operational functions (both maintenance and developmental) of the department was not clear to the new manager. Equally problematic was the determination of the working relationships between these specialists and the more senior employees within each product grouping.

The debate concerning the proper deployment and organization of these specialists goes on. Alternative organizational arrangements keep coming up. The structuring of SUD continues. In the meantime, improving employee quality of working life remains elusive.

NOTES AND REFERENCES

[1] The term machine bureaucracy is used by Mintzberg to describe an organization structured and managed according to Weber's principles of bureaucracy. See H. Mintzberg. The Structuring of Organizations. Englewood Cliffs, N.J., Prentice-Hall. 1979.

[2] Autonomous work groups are discussed widely in the literature dealing with alternative forms of work organization. For a complete, but rather difficult discussion, see G.I. Susman. Autonomy at Work: A Sociotechnical Analysis of Participative Management. New York, Praeger. 1976. For a simpler reading, see R.N. Fotilas. "Semi-autonomous work groups: An alternative in organizing product work?" Management Review, Vol. 70, No. 7. 1981. p.50-54.

[3] The term organizational arrangements refers to the various ways by which people and machines may be combined for the structuring and management of a production unit. For a more detailed discussion of this term, see H.F. Kolodny and M.N. Kiggundu. "Towards the Develcpment of a Sociotechnical Systems Model in Mechanical Harvesting." Human Relations, Vol. 33, No. 9. 1980. p.623-645.

[4] Quoted from R.M. Kanter. Men and Women of the Corporation. New York, Basic Books. 1977. p.173, borrowing from Bernard Levinson, "Bureaucratic Succession".

[5] Key variances include all the major things that could go wrong during the department's work performance. They are identified through variance control analyses which are part of the sociotechnical systems analysis of the work place. For a more complete discussion of these terms, see P.H. Engelstad. "Sociotechnical Approach to Problems of Process Control." In L.E. Davis and J.C. Taylor (eds.). Design of Jobs. Middlesex, Penguin Books. 1972. Also see M.N. Kiggundu. "Variance Control Analysis: A Diagnostic and Intervention Strategy." In K.H. Chung (ed.). Academy of Management Proceedings. San Diego, Calif., 1981. p.122-126.

[6] See R.J. Hackman and G.R. Oldham. "Development of the Job Diagnostic Survey." Journal of Applied Psychology, Vol. 60, No. 2. 1975. p.159-170.

[7] The allocation of supervisory functions and treatment of supervisors are among the most controversial problems in establishing autonomous work groups. See, for example, M.D. Osbaldeston. "Skadia Insurance Group: Restructuring the Work and Enriching the Job." Management International Review, Vol. 16, No. 2. 1976. p.9-22. Also, R.E. Walton and L.A. Schlesinger. "Do Supervisors Thrive in Participative Work Systems?" Organizational Dynamics. 1979. p.25-38; and W.A. Westley. Quality of Working Life: The Role of the Supervisor. Ottawa, Labour Canada. 1981.

[8] One of the practical problems that faced the manager was defining good service in terms meaningful to the client. For example, she found that providing the same level of service (e.g., same turn round time) to all the clients did not result into the same level of client satisfaction. Instead, different clients reacted differently to different levels of service, depending on their own needs and expectations and the type of transaction involved. This necessitated developing a differentiated service delivery system. However, it was against company policy to "discriminate" between clients. For a managerial discussion of the concept of service, see W.E. Sasser, R.P. Olsen and D.D. Wychoff. Management of Service Operations. Boston, Allyn and Bacon. 1978.

[9] For a detailed discussion of these steps, see J.C. Taylor. Studies in Participative Socio-technical Work System Analysis and Design. Center for Quality of Working Life, Los Angeles, University of California. 1978.

[10] For a classical outline of the principles of sociotechnical systems design, see A.B. Cherns. "The Principles of Sociotechnical Design." Human Relations, Vol. 29, No. 8. 1976. p.783-792.

[11] The problems of supervision associated with lack of influence and control of sources of motivation are discussed by D.C. Pelz. "Influence: A Key to Effective Leadership in the First-Line Supervision." Personnel, Vol. 29, No. 3. 1952. p.209-217; and J.W. Driscoll, D.J. Carroll and T.A. Sprecher. "The First-Level Supervisor: Still the Man in the Middle." Sloan Management Review, Vol. 19, No. 2. Winter 1978. p.25-37. For a more recent discussion of the same issues in support of supervisors, see W.E. Sasser and F.S. Leonard. "Let Supervisors Do Their Job." Harvard Business Review, Vol. 58, No. 2. 1980. p.113-121.

[12] For a discussion of sources of authority based on technical competence as opposed to bureaucratic or hierarchical positions, see T. Burns and G.M. Stalker. The Management of Innovation. London, Tavistock. 1961.

[13] The Motivating Potential Score (MPS) rose from an average of 111.9 to 163.5. According to figures recently published, the normative MPS scores for clerical jobs are 106. This compares with 116 obtained for employees of this study before the introduction of these interventions. The MPS scores of 163 obtained after the interventions are close to the normative scores of 156 for managerial jobs. See J.R. Hackman and G.R. Oldham. Work Redesign. Don Mills, Ontario, Addison-Wesley. 1981. p.317.

[14] The Hay system is basically a quantitative factor comparison method of job evaluation. See E.N. Hay and D. Purves. "A New Method of Job Evaluation, The Guide Chart-Profile Method." Personnel, Vol. 31, No. 4. 1954.

[15] It is interesting to note that when Pamela Anderson was prematurely promoted out of SUD, senior management decided to replace her with another female manager. However, the implications for this move within Beaver are beyond this case.

The author wishes to acknowledge the helpful comments and suggestions by the late Maurice Boisvert.

IMPLEMENTING A QUALITY OF WORKING LIFE PROGRAM: TWO STEPS FORWARD, ONE STEP BACK!

by

Audrey E. Bean

ABSTRACT

There seemed to be an obvious need for a quality of working life program at Haddon Crown. The employees were no longer proud of their work or their organization, and many of the supervisors were angry at what they considered the irresponsibility of employees and the union. This case describes the QWL initiatives that were intended to respond to these needs, and then highlights a number of problems that arose in carrying out the project. The success of the project may have been more pronounced if many of these problems had been circumvented or minimized.

INTRODUCTION

This is an account of an ongoing QWL experience which, for a variety of reasons, is currently under discussion. It would be premature, therefore, to comment on outcomes in the usual sense, although these will be the subject of a future published account. The case is useful and interesting, however, as a backdrop for examining the QWL process, and the present article will therefore focus on issues and problems in the initiation and evolution of a quality of working life program.

Description of the Site

"Haddon Crown Ltd." is the Canadian subsidiary of a multinational organization with head offices in Europe. The plant in question is located on the periphery of a large city and is the main production facility of the Canadian organization. The plant manufactures standardized materials used in household construction, and has experienced steady growth and several expansions over the years. It has been significantly affected, however, by the recent downturn in the economy and in construction-related industries.

The production system. A variety of product lines is manufactured and packaged by a combination of batch and process technologies. There are one to three shifts, depending on product and demand. The number of plant employees varies from 160 to 210 according to regular seasonal fluctuations in production. Employees in the plant have been organized with an international union for ten years, and blue collar jobs are classified into seven groupings under the collective agreement. Unskilled jobs include general labour and packers, machine and lift truck operators, shipping and warehouse attendants, and lead hands. The only skilled area is maintenance, which includes mechanics, electricians, tool and die makers and plumbers. More than half of the blue collar employees are in their twenties, and another 25% in their thirties. Correspondingly, 43% have 0-5 years seniority with the company, 20% have 6-12 years, and 25% have over 12 years. Many come from blue collar backgrounds, some from families where the father was a skilled tradesman, some from farm backgrounds, and a smaller proportion from white collar families.

There are twenty first and second line foremen in the plant, and a smaller number of quality control, production scheduling, and clerical staff. A number of the foremen were promoted from the shop floor, while a larger proportion were hired from outside the company. Practical experience rather than formal qualifications has been the most important factor in hiring production supervisors. Responsibility for production is divided between two production managers, who in turn report to a vice-president for production.

THE QUALITY OF WORKING LIFE PROGRAM

The decision to engage in a QWL program was made as a result of needs and concerns expressed directly and indirectly at every level in the production system. On the shop floor, employees did not seem to want to work any harder than necessary and saw the foreman as an adversary. Many of the employees who had been with the company a long time missed the "old days" when they felt proud of things like building the new plant; however, they were beginning to feel like dupes for working hard. Survey data from employees also revealed a deep sense of powerlessness to change events, distrust of others, and cynicism about receiving recognition for personal worth.

Foremen in the plant were experiencing more and more difficulty carrying out their traditional supervisory roles. Many were angry at what they considered the irresponsibility and antagonism of employees and the union, and felt increasingly that management did not understand or support them in their predicament. They felt that the whole burden of ensuring quality production under these difficult circumstances fell to them, and that everyone ended up doing the job of the person below him. Surveys among the foremen were to show that the foremen and employees had very different views about how helpful the foreman was in encouraging team effort, or helping employees to improve their performance.

Management at Haddon Crown was sensitive to the problems of foremen. They were also concerned about the low-level entry jobs, the effects on the people holding those jobs, and about the impact of such low-skilled entry levels on the calibre of their future work force. These issues prompted their search for a solution, which led to the involvement of the McGill Quality of Working Life Unit as advisors and facilitators.

In the fall of 1978, the company and the union signed a letter of agreement formally undertaking a quality of working life program in the plant. This had been preceeded by almost six months of exploration and discussion of the concepts, particularly by the union executive. It was agreed by both parties that the aim of the program was the eventual redesign of work in the plant, using a sociotechnical analytic framework and participative process. (See Appendix I)

The Project Structure

With the signing of the letter of agreement to begin the QWL program, a formal steering committee was created. The membership included the general manager, the vice-president for production, another divisional vice-president (in his role as senior manager responsible for the project), the industrial relations manager, and three union executive members. An elected representative of the foremen was added later, as well as a rotating observer from the shop floor. The director of the McGill QWL Unit and the author (facilitator for the project) sat as ex-officio members in their capacity as advisors to the committee.

The committee's role was to guide and coordinate the various activities of the program and to supply help and resources as needed. Its final responsibility was to receive and review recommendations for change from the shop floor, and to make sure that these recommendations were compatible plant-wide and were acceptable to both negotiating parties -- whether or not they involved changes to the collective agreement.

The steering committee was a key integrative structure in the program for linking hierarchical levels (from the shop floor to the general manager), functions (line and staff), language groups (French and English), and vested interests (company and union). Dramatic progress in labour-management relations was generated in this committee, and it was an important testing ground for new cooperative skills. Its members learned that decisions could be made by consensus; they became proud of the fact that no issue was ever abandoned because of a stalemate.

The steering committee authorized the first project sites and the setting up of project teams. Project teams were composed of a "vertical slice" from the area concerned, that is, the manager, at least one foreman, and elected representatives from among employees (usually three). In addition, a union executive member sat in on each team meeting so that the union was fully involved in the discussions leading up to all proposals for change, and understood why change was wanted. With experience, the union executive members were also able to explain the union's positive view of QWL to employees, and to encourage them to consider new ways of working. Finally, the author attended project team meetings as a resource person and facilitator.

The mandate of each project team was to: 1) describe and understand the production goals of their area and the way the work was structured to accomplish those goals; 2) discover how people felt about their jobs; 3) identify problems in both these areas; 4) propose changes that would address as many of the problems as possible in an integrated way. The mandate was based on a "systems" approach, that is, on looking at the technical, human, administrative and other elements of the way work was organized as inter-linked, with changes in any one element impacting on the whole.

The composition of a project team, with representatives from the various functions and levels concerned, was designed to provide access to the information needed to identify problems at each operating level in the production system and in each role or job connected with the system. The process and the team structure together were designed to build a common understanding of the set of shared work tasks, and enough trust and support to allow the members of the team to risk changing existing roles and relationships. Over an 18-month period ending in June 1980, six project teams were created in the plant.

Change Targets

The project teams initiated a variety of changes. In the process technology areas, the movement was towards multi-skilled teams which would offer increased flexibility in operations and increased opportunities for learning and advancement for employees. With the support of both union and management a pilot site was chosen and a multi-skilled team structure was developed and put into practice. The original lead hand became the trainer and troubleshooter; the operators could advance as far as they wished or were able through a three-stage training program leading to competence in all the skills required to start the line, operate it, make routine adjustments and perform quality checks. They were paid for the level of skills acquired, and rotated through the positions on the line according to a weekly schedule decided in a team meeting. The top pay level for operators was the same as that which had been paid to the lead hand under the original classification system, since these were the functions that worker had performed.

In the batch production areas, the movement was toward teaming, with the possibility of future multi-skilling. One production area was relocated to a separate building at this time, and this heightened team spirit and encouraged cooperative relationships. This team began to take over its own internal work scheduling, materials handling and production reporting, while the foreman concentrated increasingly on coordination with other areas.

In the maintenance department, two internal sections were integrated and steps were taken to clarify the "client-support" relationship with the production departments and to investigate ways to improve service. In some cases, a maintenance person was assigned to the production team.

Finally, in the shipping department, there was some movement towards transferring the responsibility for work scheduling from supervision to employees. In addition, there were attempts to link across the boundary with production departments, especially in discussing defective materials sent by production to shipping.

IMPLEMENTATION: SEVEN ISSUES

The issues and problems described here are drawn from a particular experience. To a great extent they may be characteristic of change programs in general. The list is not exhaustive, but should give readers a sense of the kinds of concerns that must be dealt with in the course of such an undertaking. It is evident that many of the problems may be circumvented or minimized if they are anticipated well in advance.

1. Trust Building

A profile of labour-management relations gives many indications of how healthy an organization is: how much of the human energy expended at work is creative, and therefore, advances the organization's goals, and how much is obstructionist, and therefore undermines the organization's goals.

One of the first things that became apparent when a QWL program was proposed at Haddon Crown was the degree of suspicion felt by union and employees towards management. The collective agreement was the most important and safest vehicle for communication between the two groups, and the message at all levels was that management's interests and those of employees were opposed. This adversarial conception of the relationship was especially powerful because it was acted out every day on the shop floor between employees (or their union representatives) and foremen. These feelings of mistrust were the most important and most difficult barrier that had to be addressed before any kind of joint effort could begin.

Increasing trust in labour relations is a slow, sometimes imperceptible "building-block" process of accumulating positive events and experiences within the organization. It is only when people from different groups, levels, and parts of the organization begin to work and interact together that they can begin to define their relationships in new ways. The eventual goal is to give them a new sense of personal worth and self-assurance based on qualities like cooperation and respect for competence rather than power and authoritarianism. The former is based on maintaining distance between groups and levels, which feeds suspicion; the latter requires structures where people can work together, which fosters trust.

For a time, it was impossible for the union to believe that anything management proposed could possibly be good for them. The word "sincerity" was heard a lot as the union and employees looked for concrete proof of management's good faith. A visit to a QWL site in the United States was a cornerstone, as it brought people from management and the union together for a common purpose and under circumstances that underlined their similarities rather than their differences. Important building blocks like the steering committee and project teams were eventually set up, which in turn created an atmosphere in which more and more cooperative initiatives were taken by an increasingly wide range of people. At first, initiatives came almost entirely from management, but gradually union officers, foremen and employees felt confident enough to make moves toward changing old patterns.

2. The Term QWL

The term QWL was used to describe the impending change program. This tended to encourage individual interpretations of the program, which were often unrealistic and hard to live with later. This occurred in spite of informational meetings conducted jointly by management and the union for all employees, which suggests that no amount of "official" information can solve the problem completely. When confronted with questions or skepticism, those launching such a program tend to elaborate concepts or possible outcomes, which may then be expanded and misinterpreted. Thus, a redesign program can begin to be seen by some employees as a "give-away" program.

Experience in subsequent programs suggests that members of the steering committee (or similar monitoring body) can begin by articulating their hopes and goals for their organization. It might then be possible to name the project more appropriately. The steering committee must be clear about the fact that goals like increased trust, cooperation, and problem solving will be directed towards changing the way the work is done. At Haddon Crown, the long-term "organizational change" goals of the program were understood by the leaders of management and the union, but were much less clear to others.

3. Project Team Membership

After the first redesign sites were named, the membership of the project team needed to be established. A "diagonal slice" from each area was recommended, but rejected in favour of a "vertical slice" composition. Representation was limited to the line functions, that is, operators, foremen and the department manager. Persons outside this boundary, performing functions such as materials handling, maintenance and quality control, were only invited to project team meetings to explain their function or to discuss specific problems. Generally speaking, these employees did not feel any ownership of, or responsibility for, the team's objectives.

In a traditional system, the organizational frame of reference generally places boundaries between functional departments. There is a tendency, therefore, to resist any other definition, even for the purposes of a study. The reasons given often stress "practicality". The people needed may also "belong to" other managers, and the manager of the project site may be reluctant to ask for their time commitment, particularly if the relationship between departments is strained.

However, a really productive discussion of boundary problems depends on having representation from, for example, internal "clients", internal "suppliers", and support functions. A project team with no cross-boundary representation risks increasing differentiation between functional subsystems (between "us" and "them"), which may result in key redesign issues remaining untouched. This representation is needed from the time the project team forms, as teams develop their own bonds, and are likely to reject the idea of adding new members in midstream.

There are two additional related consequences of defining team membership too narrowly. First, the employee representatives and foremen may continue to rely too strongly on the manager and his or her traditional decision-making role, looking to him or her to take initiatives and take care of follow-up. The teams at Haddon Crown recognized this, and responded by rotating the chairmanship of the team (once per month), which gave each team member a sense of ownership and responsibility for the work of the team. Second, the team tends to lapse into "shop talk" and discussion of internal departmental problems, deflecting attention from the analysis (although to them it is a constructive discussion arising out of the increased communication which project teams bring). In a multi-functional team, members from outside the department boundaries become impatient with such discussions, and redirect attention to the task at hand.

4. Sociotechnical Analysis as a Change Strategy

A sociotechnical analysis may be a straightforward (if complex) task when carried out amicably among peers, or on a site in which one doesn't work and has no vested interest. It seems to be a much more difficult undertaking for a group whose members do not trust one another, where some members have only grade school education, and where jobs have discretionary time spans of less than a day. The experience of project teams at Haddon Crown raised questions about the effectiveness of the sociotechnical approach, not as an analytic tool, but as a vehicle for bringing about change (that is, the redesign of an existing work system). The sociotechnical approach is based on the assumption that if you can change the work structure, you will change the way people feel and behave towards their work. However, if we think of change in Kurt Lewin's terms -- as a process of "unfreezing", "change", and then "re-freezing" -- then we can say that carrying out a sociotechnical analysis does not, in itself, perform the crucial "unfreezing" function which makes change possible, nor does it guarantee that change will take place and be institutionalized. The managers, foremen, and employees (particularly unionized employees) who sit on project teams and carry out the analysis come to these teams with their own frames of reference, instilled over many years of working within a traditional organizational framework.

Teams may have the tendency to be suspicious of the sociotechnical approach. Shop-floor employees, for example, often feel manipulated by words, and are suspicious that the technical analysis (in particular) is a way of making them work harder so that management will gain in productivity. They have found ways over the years of taking advantage of the old system, and don't want to have to expose these. When these feelings emerge, the response is often to reject the technical system analysis as being "management's problems" to solve.

Foremen and managers, on the other hand, have difficulty sharing traditional management concerns and problems (for example, the budget) with employees. They sometimes feel that the program will deal only with employees' frustrations, and are frustrated because they feel that being "nicer" to employees does not result in long-term changes in attitude. To them, an atmosphere in which management gives things to employees and expects something in return -- in other words, engages in a series of trade-offs -- is too reminiscent of the traditional bargaining stance and can cause a backlash from employees.

Managers may also feel uncomfortable on project teams. Their job has been to control the work system, and it is difficult for them to take the risk of sharing that control. The result is sometimes a kind of attitudinal "flipflop". Managers enter the team as managers; they have power and authority and feel responsible for the outcome. At some point, they may decide to risk sharing this power and authority, but at the same time they may give up responsibility for the outcome, effectively handing it over to employees. Employees generally cannot handle this, and view it as a lack of cooperation.

There is some need to give managers (and foremen) a clear image of the possibilities and advantages of a restructured work system for their own jobs. This would allow them to exchange responsibilities they hold now for that long-term image, instead of for short-term productivity and attitudinal gains. Productivity must be seen as a spinoff of the change rather than as its raison d'être, or the process gets stuck in trade-offs and everyone becomes discouraged. It is also important that the manager learn how to define a system in sociotechnical terms in order to help the teams reinterpret old problems in new ways. For example, "personality conflicts" may have to be redefined as "boundary tensions". Finally, change agents may need to combine the analytic and design skills of sociotechnical theory and practice with the process skills of the organizational development field.

5. Impatience for Change

The impatience of employees for change surfaced in several ways at Haddon Crown. Those employees who were already members of project teams were particularly impatient during the analysis when problem areas were discovered; they did not want to have to wait for completion of the analysis and proposals for redesign in order to solve them. The initial response, namely to allow immediate remedies, created another problem--haphazard solutions and undue delays in completing the analysis.

A second type of impatience came from employees in areas not yet involved in project teams. Their attitude was "why not us too?" This problem was solved initially by establishing project teams in several other areas of the plant, but spreading the available resources too thinly, thus creating another problem.

The problems that were uppermost in the minds and in the everyday experiences of employees at Haddon Crown tended to be working conditions issues (Herzberg's "hygiene" needs): paint fumes, cold drafts, cramped lunch facilities. As long as these needs went unsatisfied, employees had difficulty concentrating on any "higher" level problems. Moreover, they tended to equate the speed of their resolution with the sincerity of management.

Project teams using a sociotechnical approach do give management and employees a framework and a forum for identifying problems and finding ways to work on them. A number of these pressing working conditions problems were solved by the project teams, outside of the analysis, using a problem-solving approach. However, meeting hygiene needs costs money, and for management there is a natural desire to see something in return, for example, appreciation in the form of increased attention to work and cooperation on the shop floor. Employees, on the other hand, see reasonable working conditions as a right that should not require a QWL program to rectify.

6. The Role of the Foreman

The complaints of foremen at Haddon Crown about their roles were strikingly similar to those expressed by foremen in other organizations. Four themes come up again and again: lack of discipline among employees; lack of respect by employees for foremen; the fact that management does not support the foremen; and the fact that management does not tell the foremen anything. The older foremen remembered a time not so long ago, which they regarded as a kind of golden age, when they were close to management and had real authority and respect on the shop floor. Some dreamed of being able to go back in time, a fantasy in which management somehow gave them the power to reassert their old authority and regain respect. Only when they began to accept that they couldn't turn back the clock could the QWL program offer them a way out of their "role trap", and the prospect of a new role which would be closer to management and respected by employees.

The first real breakthrough came at the initiative of the union in the form of two day-long meetings outside the plant -- the first with all foremen and the union executive, and the second with all foremen, the union executive, and the four shop stewards. These meetings allowed the two groups, in a structured atmosphere and with the help of a facilitator, to express their feelings about one another and the problems in their relationship. One foreman commented at the end of the meeting, "We thought you guys were a bunch of radical SOBs, but after talking to you here, we see that we might be able to work together". By the end of the second meeting, the focus was moving from foremen-union problems to the concerns of the foremen themselves. These meetings, and their contact on the project teams, transformed the relationship between foremen and union officials. Soon they began to consult one another on problems before confrontations could develop.

Progress in transforming the foremen's own roles was slower. Initially they attributed their difficulties with employees to a lack of human relations, communications, and problem-solving skills, and management responded by organizing a series of four one-day workshops covering these topics. While the foremen expressed real satisfaction with the actual training program, many became discouraged with their experiences back on the shop floor where the structure of work and roles had not yet been redesigned to permit them to use these new skills.

This experience underlines the need to see training as a component of job and organizational redesign, rather than as a remedy for role frustrations. Foremen, for example, must be helped to redesign their roles as part of a redesigned work structure. Then, as a new role begins to emerge, the training they will need to carry out their new functions will become clear. Foremen will thus be motivated to learn the new skills and will be able to use them immediately in their work.

7. The Steering Committee

As a working body, the Haddon Crown steering committee had strengths and weaknesses. It played a very positive and constructive role as a forum for discussing particular issues of concern to management or the union. For example, the idea that the collective agreement could be changed according to wishes expressed by different areas in the plant gradually evolved through discussions here, as did the realization that the traditional classification system did not necessarily produce satisfying jobs. The relationships established through such discussions gradually allowed members to feel that they could visit one another's "work domains" to talk about ideas or difficulties. The committee also began, both formally and informally, to bridge the gap in communication and understanding between the plant and the administrative office personnel.

The steering committee's weakness was the result of its failure to have clear objectives for the long term. This was largely due to a desire to allow project teams to develop their own proposals for change without interference from a "governing body". However, it resulted in the steering committee having little control over the process as well as the content of project team activities. Thus, project teams were not given reasonable time frames for completion of their work, or required to make regular presentations of their work in progress.

To fulfill its real purpose, a steering committee must establish a kind of "contract for change" with project teams at the beginning of their mandates. There is a time of crisis in such teams when changes that have only been talked about begin to look as though they will really be implemented. At such times, these people need firmness and support, or they often discover "reasons" why the changes should not be made.

The Haddon Crown committee did confront the issue of unclear objectives, eventually drawing up a document that outlined the goals they hoped to achieve and a set of concrete structures and processes that would move the company toward those goals.

CONCLUSION

The highlights drawn from this experience, for the purposes of this article, stress difficulties rather than achievements. It should therefore be mentioned that during this same period the organization experienced great improvement in labour-management relations; the emergence of creative energy and leadership among managers, foremen and employees; and the willingness to break with tradition and attempt a new multi-skilled work structure. These are now as legitimate a part of the organization's history and culture as hostility and confrontation have been.

APPENDIX I

THE HADDON CROWN LIMITED PROGRAM

The Quality of Working Life is an investigation of new work methods which gives office employees, managers, foremen and union members the chance to exchange ideas for the purpose of improving our work relationships and our way of working. As a result, we can humanize by encouraging their areas of work.

The Haddon Crown Limited Program is aimed at developing 1) a collaborative problem-solving relationship among all groups of employees; 2) a climate of trust and cooperation between individuals and groups and 3) a system of work in which everyone works together to maximize the quality of working life and the performance of the company.

In Haddon Crown we believe that:

1. All employees are responsible, trustworthy, and able to work together effectively.
2. All employees should be encouraged to make decisions related to their areas of work and responsibility. To accomplish this, they should be given the necessary authority, training, information, and tools.
3. A working climate should be provided which encourages constructive criticism, initiative, experimentation, and new ideas.
4. An open and meaningful two-way communication system should be provided.
5. An effective program directed at a safe, healthy and pleasant working environment should be implemented.

It is hoped that by adhering to the above principles, the following goals will eventually be attained:

1. All employees will be much better informed. This will allow them to participate more fully in the day-to-day decision-making in the company.

2. Disputes among employees, regardless of their status, will be settled amicably and will diminish considerably.

3. Autonomous or semi-autonomous groups of employees will be created and work together with greater decision-making power and a minimum amount of supervision.

4. Foremen and supervisors will modify their present roles to a more important one of coordinator and resource person.

5. Greater opportunities for advancement, development, training and growth on the job will be created.

With these principles in mind, the Steering Committee (representing the company, the Union and office employees), has accepted the following change targets:

In order to increase communication, openness, trust and collaborative problem-solving:

1. The Haddon Crown Committee

This will be a permanent Company-wide committee (having plant and office sub-committees) which will consist of representatives from the union executive, management, and the other groups within the company. It will meet on a regular basis to review questions affecting working conditions, changes in the work system, and the quality of working life. This committee will receive, review, and approve decisions from the sub-committees in each work unit of the company. It will also develop and monitor a company-wide safety program, and will review issues which cannot be resolved at the level of the departmental safety committees.

The committee will be empowered to make limited budgetary decisions on safety, cafeteria, and on recreational and educational programs. (Note: The H.C. Committee does not replace the existing Recreation Committee.)

The Committee will be authorized to establish principles with respect to work relations in the company. It will also plan information sessions for employees as it feels they are needed.

Decisions by the Haddon Crown Committee will be made by consensus.

Issues in areas beyond the jurisdiction of the Haddon Crown Committee will be brought to the attention of management in the form of recommendations.

2. The Unit Teams

Each work unit in the company will have a permanent management-employee team composed of the foreman or supervisor and elected employees (and the departmental shop steward in the plant) which will meet once a month to consider suggestions made by employees for job and work system redesign, working conditions, and work improvements. Training in problem-solving will be provided for these teams. Where appropriate, the department as a whole will meet to discuss major changes and problems.

Where feasible (e.g., within budgetary constraints), the team must accept or reject the suggestions, and if it accepts them, implement them. Where the team cannot act on a suggestion, it must be passed on to the responsible manager. In the case of an impasse, the problem must be submitted to the Haddon Crown Committee. In any event, the team must report the fate of the suggestion to the employee who made it immediately after its next meeting.

3. Joint Budget Setting and Performance Feedback

In order to acquaint employees with the financial objectives and concerns of their work unit, and to enable managers to obtain their advice and help on setting and meeting budgets, it is the policy of Haddon Crown to have periodic budget meetings with all employees in each work unit.

The purpose of these meetings is to discuss (meaning to inform about and get feedback on) the proposed budget, budget changes, and budget achievements with all employees.

Managers will be assisted in these budget meetings by a representative of the Accounting Department.

In addition, each work unit will receive regular feedback on its productivity in a form which will allow the workers to rectify operating variances.

THE DESIGN OF WORK

Recognizing that the design of work units and jobs strongly affects the way employees contribute to and make decisions about their work, opportunities will be provided for the review of jobs and work units. To this end, there will be:

4. Agreements within each work unit in the company concerning autonomy, consultation, and communication within that unit:

   the degree of autonomy which seems useful to the unit and which employees are willing to take on;

   the issues about which employees will be consulted by foremen and managers, and how this consultation will be carried out;

   the content, timing and method of regular communication to members of the unit.

Within the Plant only, the Committee will consider and review:

5. The provision of multi-skilling opportunities for employees in relevant work units. Relevance depends

on whether multi-skilling is useful to increasing the performance of the work unit and/or motivation of employees. Employees in that unit will be given the option of choosing the multi-skilling framework of jobs, or the traditional framework. The multi-skilling framework will necessarily mean that employees will be willing to do any job which they are skilled in, and that employees will receive pay increments for the skills they learn.

Also within the Plant only:

6. A task force will be established to improve the foreman's role. This should become an ongoing unit which meets at regular intervals. It should include a manager and a representative group of foremen, and have as its tasks the regular review of the foreman's, or coordinator's role, suggestions for improvements in his role, and the development of training programs that will permit the foremen to make improvements in their roles. The committee should have its own consultants and budget for this purpose. It should seriously consider, among other things, regular meetings with representatives of the union to discuss how to work together towards common objectives.

EXPANSION OF SKILLS AND KNOWLEDGE

The skills and knowledge of employees are a valuable and essential resource of the company and the company is committed to assisting them to maximize their development in these areas. To this end, the company will provide:

7. A program of educational assistance and of training for all employees; proposals at present include the training opportunities described in points 2, 4, 5 and 8 of this document.

8. Where groups become relatively autonomous, training for all members and levels of the group in group problem-solving and decision-making.

"CONTINUOUS RENEWAL":
LESSONS FROM A QWL PROJECT

by

Donald V. Nightingale

ABSTRACT

Why are so many QWL programs terminated? In addressing this question, this paper discusses the difficulties of sustaining QWL initiatives. It describes Supreme Aluminum's experience in overcoming the serious threats to the continuation of a program of workplace democracy. The example illustrates how "continuous renewal" can be part of QWL.

INTRODUCTION

Quality of working life is widely regarded throughout the industrialized world as an effective strategy for coping with the human problems of the modern work organization. The growing interest in QWL is animated as much by democratic and humanistic values as by well-documented analyses of the benefits of these programs. This paper has been prepared to sound a caution: the difficulties of sustaining QWL initiatives over the long term have been underestimated, and greater attention must be directed toward the maintenance and renewal of these initiatives if they are to have positive effects on productivity and employee morale.

Much of the QWL literature focusses on the introduction of new initiatives. Because there are few reported evaluations of QWL programs that were introduced more than ten years ago,[1] most managers, trade unionists, and QWL consultants are unprepared for the problems that will inevitably arise. Long-term evaluations of QWL programs will provide important lessons which cannot be gleaned from studies that examine the introduction and short-term effects of changes in methods of work or decision-making responsibilities.

The emphasis on the short-term effects of QWL programs has created an impression--which can be argued to be fundamentally wrong--that QWL programs, once introduced successfully, will continue successfully in the future. From the few limited studies of the long-term effects of QWL initiatives it appears that firms introducing such changes generally encounter difficulty several years down the road and many companies abandon the principles and practices first adopted in these ventures.[2]

While those firms that have introduced QWL programs may well be the harbingers of the millenial age where labour peace and high productivity are the norm, programs that survive in the longer term will not succeed without periods of renewal and commitment to a new and improved future.

This paper examines a case of workplace democracy which was initiated before the term "quality of working life" became popular; it reviews ten years' experience with this program and draws important lessons from the experience. The central argument is that QWL initiatives, to be successful, require the continuing commitment of employees to review and re-evaluate the initiative at regular intervals.

TERMINATIONS IN QWL PROGRAMS

Many of the celebrated QWL initiatives in North America in recent years have been terminated.3 The celebrated experiment in QWL at Rushton Mines, for example, attracted the attention of both the popular press and the academic community. This program was terminated following a vote of members of the United Mineworkers Union.4 The programs in employee ownership and economic democracy at South Bend Lathe in Michigan and Vermont Asbestos in Vermont have also been terminated.

In Canada, we have no shortage of QWL initiatives that, despite high levels of initial enthusiasm, have encountered difficulties. The program of joint union-management ownership and cooperation at Tembec Forest Products in Temiskaming, Quebec (two union representatives on a nine-member board of directors) has survived for seven years, but the relationship between management and employees is increasingly strained. The spirit of goodwill and the euphoria following the purchase and reopening of the mill has waned over the years, and although the formal structures remain virtually the same as they were, the trust and goodwill between labour and management has eroded.[5]

Canada's famous experiment in employee ownership--Byers Transport in Edmonton, Alberta--has recently been terminated. As in the Vermont Asbestos case, workers at Byers Transport voted to sell their shares to a private owner, and to abandon this remarkable experiment in employee ownership and control. The workers preferred the capital gain entailed in the sale of their company to the right to co-manage the enterprise.[6]

In two Quebec producer cooperatives--Les Industries du Saguenay and Harvey Transport--the worker ownership and control program continues but the day-to-day relations between managers and workers in these companies is indistinguishable from those of traditionally-managed companies. In these cases as in the others, a QWL initiative which should theoretically lead to more egalitarian forms of interaction and control has floundered.[7]

Other examples of gainsharing and employee ownership, despite initial fanfare and enthusiasm, also have been terminated.[8] Organizations that introduced autonomous work groups several years ago are now confronting the "topping out" problem. That is, motivated and ambitious workers in the teams find limited opportunities for acquiring new skills and for promotion; in many cases they become dissatisfied.

We should not conclude from these terminations that QWL initiatives are without lasting value, or that they are unlikely to succeed in the business environment of the 1980s. However, these terminations suggest an important lesson: QWL cannot be introduced and left to run on its own. No matter how strong the initial spirit of goodwill when the program is conceived and implemented, the program should not be considered as the final point, but rather the beginning of a continuing and open-ended program of renewal.

These terminations do indicate, however, that the long-term success of QWL programs is not assured. An analysis of virtually all long-term QWL programs suggests that such initiatives should not be regarded as programs with neat and definitive boundaries, with finite beginnings and ends, but rather as continuing commitments to a principle or a philosophy--that is, to be guided by the values of equality, mutual respect, and collaborative labour-management relations. Many programs are terminated because the entropic process is neglected; after a QWL program is introduced to a workplace, further effort, commitment, and review are deemed unnecessary.

If QWL is viewed appropriately--that is, as a commitment to an ideal--then the specific form of the program is less likely to be viewed in a dogmatic fashion and it is more likely to be changed and adjusted over the years as circumstances require.

AN EXAMPLE OF CONTINUOUS RENEWAL

In the following section, the case of Supreme Aluminum Industries in Toronto, Ontario, will be examined. This analysis will trace the recent development of a QWL initiative in the area of broadened employee participation in decision making. It will not describe the nature of the programs, except in broad detail, since these aspects of Supreme Aluminum have been adequately described elsewhere,[9] but it will focus on the mounting pressure for change--a process that is inevitable in any QWL initiative.

This experiment in workplace democracy has recently overcome a serious threat to its continuation and now appears likely to continue in the future. This example will demonstrate how "continuous renewal" can be built into QWL; it will show why workplace democracy is not a panacea and why it cannot succeed in the long run without the commitment of managers and employees to review the program and adjust it in a manner that continues to inspire and motivate employees.

The Changes at Supreme Aluminum

Of the Canadian companies that give significant decision-making rights and responsibilities to employees, Supreme Aluminum's program is of longest standing.

In the Supreme Aluminum case, there are two critical years--1971 and 1981. At each time, a previously successful, QWL program faced mounting employee dissatisfaction, and steps were taken to redesign the program. The 1971 renewal was successful and the 1981 renewal appears to have given the program new impetus.

Supreme Aluminum Industries was founded in 1920. Today it enjoys 50% of the domestic market for cookware, and produces aluminum ladders and specialty gift items.

The firm employs 350 people in three locations, in Scarborough, Pickering, and Rexdale, Ontario. The operation is non-unionized.

The company has three programs: employee ownership, profitsharing, and a QWL program giving employees decision-making responsibilities. In 1979, the company was the first in Canada to establish an Employee Share Ownership Plan (ESOP) through a Section 147 Profit Sharing Plan. Roughly 60% of employees own shares in the company; employees own roughly 28% of company shares.

The profit-sharing plan distributes 30% of gross profits to employees. The percentage of gross profits shared is determined annually (for the coming year) by the board of directors. One third of the amount distributed is paid in cash, one third is deferred and placed in a trust (which substitutes for a pension plan), and one third is invested in company shares.

Although important changes have been made to both the ownership and profit-sharing plans over the years, the most significant changes have been made to the program of employee participation. These changes were not envisioned by those who introduced the program in 1971; furthermore, without these changes, the program would never have survived.

The founder of the firm, Harold Lush, established a plant council in 1950 to provide management with a formal means of communication with the rank and file. This representative body was purely advisory and was given no decision-making responsibilities. It worked well for many years, however; morale was high and employees felt that they could influence management decision making. However, after the founder left the company in 1962, less attention was paid to the council, and meetings became less frequent.

Without the support of the founder, the effectiveness of the plant council was greatly diminished. The plant council represented only rank-and-file employees in its plant and was not perceived as broadly representative of Supreme employees. Further, the members of the plant council were seen by most employees as too docile and not vigorous enough in the defense of employee interests. The new chairman of the board, Sheldon Lush, sensed this dissatisfaction with the plant council and circulated a questionnaire, which asked employees for their view of the council. Strong negative feelings surfaced; 85% of employees voted in favour of a new council.

In the face of growing employee dissatisfaction with the council, a new council was created in 1971. This council, called Supreme Association for Effective Results (SAFER) was proposed by the chairman of the board. At that time, there were no examples to follow and little evidence, beyond earlier experience in Supreme, that councils of this kind would have any effect on employee morale or commitment to the firm.

Supervisory staff and most managers were not involved in the design of the new council. Most remained skeptical of its prospects, but acceded to the wishes of the chairman. Supervisors feared that their responsibilities would be diminished and that their subordinates would have a direct voice with senior management.

The philosophy of the new council is described in the constitution.

> In the search for a better way of industrial life in which mutual trust, respect and understanding will be the goal, all employees (supervisory and non-supervisory) will work together to share information and responsibilities, and thus through consultation and involvement by all concerned there will be created a democratic atmosphere in which decisions affecting employees will be made by employees.

There was a feeling among employees in the period 1971 to 1973 that they were pioneering in a new venture that would demonstrate that significant sharing of decision-making power on a collaborative basis would work. Employee support of the program grew, and initial management fears dissipated. Employee representatives rarely circumvented the chain of command and, in fact, simplified the job of first line supervision by dealing with employee complaints before they came to the attention of senior management.

The SAFER committee consisted of 18 members: 12 elected from among the non-supervisory personnel; four elected from supervisory ranks (two from first line supervision and two from middle management); and two representatives appointed by the president from senior management ranks. The SAFER governing body was to meet at least four times a year; in practice, meetings were held six to ten times per year.

All members had an equal vote on matters brought before the committee. After a discussion of any issue, a vote was held. The vote might be open or secret, at the option of the chairman.

The SAFER governing body was responsible "for all matters which directly concern people". This includes job classifications, the establishment of salary schedules, annual wage increases, hours and conditions of work, the final decision on grievances, layoffs, assignment and transfer of people to jobs, operating speeds and methods of production. In addition, management reports on sales figures, profits, production, and new products were presented to the SAFER council.

There was a clear distinction between the rights of management and the rights of SAFER. Management reserved the right to make decisions in three areas: (1) the right to hire, suspend, or discharge employees (subject to the grievance procedure and the final and binding decision of the governing council); (2) the determination of the earnings of supervisors, salesmen and managers; and (3) the determination of the nature and variety of production. Although management reserved the right to make final decisions in these three areas, it was obligated to make these decisions only after consultation with SAFER, the chairman of the governing body or with the elected representatives of employees affected by the decision.

The responsibilities of SAFER representatives included: being on call to answer questions from their constituents, consulting with managers on plans that may effect their constituents, defending the interests of their constituents, and keeping their constituents fully informed of all developments that might affect them. The emphasis was on direct face-to-face problem solving between parties who disagreed. In cases where agreement could not be reached on this basis, the question came before the governing body for a final decision.

Jeff Davidson, the industrial relations manager of Supreme Aluminum Industries, described the SAFER governing body in the following way to newly elected employee representatives:

> The governing body is in effect an 'industrial parliament' (employee government) which operates in a very similar manner to our municipal, provincial, and federal governments. We elect representatives to make decisions for us in all areas of the business which affect us. Those representatives are accountable to us. We ask them to take our views into account, make decisions for us, and advise us of their decisions. We may not always be pleased with their decisions as individuals, but we do expect them to take the good of all employees into account. Just as in public life, petitions can be taken and candidates voted out of office when their decisions are unpopular to the majority of their constituents. For this reason, it makes sense that all employees weigh very carefully who they will nominate and elect, because in the end the choice will affect them very substantially.
>
> In society, we elect members of parliament to decide our taxes and to make and administer our laws. In Supreme, we elect SAFER representatives to decide our wages and benefits, to make and administer our annual contract or agreement, to represent our interests, protect our rights as people and in accordance with the agreement, and to ensure that our interests and views are considered in decision making which affects us as employees. So, working conditions, work processes, changes in these areas, and personal

> treatment, are very much in SAFER's territory. Just as our governments make and try to fairly enforce the rules of society, so SAFER makes and tries to fairly enforce the rules of industrial life at Supreme Aluminum. (In a memo to SAFER representatives, March 30, 1978.)

In the years 1976 to 1977, the focus of SAFER was largely on developing a formal, printed agreement. When SAFER began, there was no formal document specifying the rights, responsibilities and objectives of the elected representatives. Over the years, a constitution evolved and various loopholes were removed. There were, however, some concrete improvements which emerged from SAFER. A four-day workweek was introduced; time clocks were removed and all production workers put on salary; wage and benefit packages were successfully negotiated; and a comprehensive job evaluation and performance appraisal system was implemented.

During 1978, SAFER entered a period of decline. Employees began to feel that they were not effectively represented by SAFER. Chairmen of important subcommittees of SAFER tended to come from management ranks, managers tended to be overrepresented on important committees, and there were frequent communication breakdowns between employees and management.

As trust between the parties declined, more outspoken SAFER representatives were elected, and these representatives complained that management did not consult frequently enough with SAFER. In 1977, the economic performance of the company began to decline. Share price fell by 20%, the profit-sharing allocation fell by 50% and then by 30% again the following year, and management felt that the future of the firm was in jeopardy. In that year, the wage package proposed by SAFER was rejected by management. A serious profit decline and a forecast of a loss in the coming year prompted management to propose a wage and salary package below that expected by employees. After a strong plea by management representatives on SAFER, the management wage and benefit package was accepted by employee representatives. The failure of worker representatives on SAFER to obtain a settlement which was considered fair and equitable by the rank and file led to further disappointment with SAFER.

In the following years, SAFER representatives endeavoured to find a new role for themselves and to revitalize the council. In 1979, the number of representatives on SAFER was reduced from 18 to 12 (the workers continued to have a majority of votes on the council); it was hoped that meetings of the council would be more productive with fewer members.

However, the emerging difficulties with SAFER could not be solved by reducing the membership of the council. Over the years, the enthusiasm with which the council began and which sustained it during its early years gradually declined. By 1980, there was a widespread perception among employees that SAFER was no longer working.

At this time, the chairman of the board sought the help of an outside consultant to assist him with a QWL initiative directed toward enriching the work on the shop floor. In the course of a feasibility report on the redesign of the shop floor, interviews with employees, SAFER representatives and supervisors revealed that dissatisfaction, frustration, and cynicism were so widespread that further initiatives in the area of redesign were unlikely to succeed.

Employees reported that "SAFER is a body with little power. It is a puppet group placed before employees like a carrot." "I don't agree with it; it is poorly run, ineffective, and too much like a union." "It's a good idea, but it is not allowed to function because management's ideas are funneled through SAFER."

The consultant informed management that, as a first priority, SAFER had to be revitalized and reconceptualized. The chairman of the board and the chairman of SAFER concurred and jointly committed the organization to change the employee representation system.

An employee survey conducted by SAFER confirmed these initial impressions. The chairman of the board and

SAFER REPRESENTATION

	1971-1978	1979
Senior management	2	1
Middle management	2	1
Supervisors	3	2
Rank and file	11	8
TOTAL	18	12

the chairman of the council then arranged a retreat for 30 senior managers, employee representatives and interested middle managers. These 30 employees were selected to represent a cross-section of all levels of management, diverse functional specialties, and all areas of the plants and offices. They were to search for and define a new mission for the council and to propose a blueprint for implementing this plan. The retreat was given the highest priority in the company, and it was made clear that the group of 30 was to begin with a "blank sheet".

At the retreat (which lasted two days) the 30 participants forged a new mission for the council. The first day was relatively unproductive; managers and employee representatives were guarded in their comments and uncertain about each other's expectations. On the second day, however, substantial progress toward a new council was made. One of the most difficult issues faced by the group was the creation of mechanisms to deal with "advocacy" (due process rights) which could co-exist with mechanisms where considerable collaboration was required. Advocacy mechanisms are essential to protect the rights of employees (and to prevent unfair or capricious treatment by superiors) but they can destroy collaborative mechanisms by breaking down trust between the parties.

Collaborative mechanisms in the form of standing committees and joint labour-management task forces were created to handle the following: (1) communications; (2) remuneration surveys and distribution of results; (3) social activities; (4) health, safety and working conditions; (5) morale; (6) new employee orientation and staff development; (7) promotion and administration of profit sharing; and (8) formulation of employee policies and procedures. These issues were thought to be amenable to joint labour-management problem solving.

Advocacy mechanisms were established to cover areas where problem solving might not work. Employee representatives would have the authority to reverse decisions by supervisors which infringed on the rights of their constituents; SAFER would be the final arbiter of all grievances not settled by the parties; and a committee consisting of an equal number of labour and management representatives would determine the annual wage and benefit package.

The enthusiasm and commitment of employees after this meeting will very likely sustain this initiative for some time to come. The spirit of open confrontation of differences and the spirit of high trust and goodwill are contagious, and the new program, which is about to be implemented, enjoys more employee support than the previous program. It is too early to tell at this writing whether the new program will meet employee expectations over the long term. The program of renewal is continuing and may take a full year before the necessary mechanics are in place.

INSIGHTS FROM THE CASE AND A PROPOSAL

It is a central thesis of this paper that the "ownership" of a QWL program comes from involvement and struggle. As soon as a new program is introduced, the conditions that prompted its introduction change and the programs begin to decay. Employees (or their representatives) and managers are faced with the challenge of renewing the spirit which originally animated the quality of working life program. Without this rebirth, a QWL program, regardless of its resourcefulness or innovative nature, and regardless of the initial level of employee enthusiasm, will inevitably fail to meet expectations.

"Continuous Renewal"

The term "continuous renewal" describes a commitment to review and appraise a QWL program in the future so that it is able to meet the changing needs and expectations of the employees.

In the realm of the workplace, what once passed as a leading advance soon becomes commonplace; innovations that once captured the imagination hardly merit passing attention today. In a world of rapidly changing social standards, innovative and imaginative approaches soon become banal.

Furthermore, pressures from the larger society make innovations in decision-making practices difficult to sustain. In Canadian society, it is difficult to maintain collaborative forms of workplace democracy because the poor industrial relations climate of the society is contagious.

Who is to initiate the continuous renewal? It has become a truism in the organizational development literature that new QWL programs seem to succeed when introduced under the auspices of a powerful patron who is able to generate strong support for the program. Unfortunately, however, a powerful patron too often becomes enamoured of his or her original concept and is often unwilling to subject it to continuing review and appraisal.

Members of the organization (including the patron) must be prepared to subject the QWL program to review, analysis and change. Review and appraisal should be the responsibility of all employees--including some who were not "founding members".

The review should be undertaken by persons who have a strong and genuine interest in the QWL program. Unfortunately, however, the energies of motivated and capable people in the organization are often deflected to other, more immediate and pressing problems. The Supreme Aluminum Industries case shows that, when the organization is buffeted by severe economic pressure, the temptation to neglect the program is strong. The economic benefits of QWL programs are not always obvious or measurable, and managers and workers alike are often tempted to seek easily implemented, short-term solutions to the problem and to suspend interest in the QWL program.

The long-term success of a QWL initiative is not independent of other practices or events in the company. For example, at Supreme Aluminum Industries, general economic conditions deeply affected employee morale. Employees, through the profit-sharing plan and through quarterly meetings with managers, knew in detail the fortunes of the company. As the firm's profits declined, so did the morale of the employees. Employees' attention increasingly focussed on job security, seniority rights, and due process issues, and moved away from the original objectives of giving employees a voice in decisions affecting their work lives.

A Proposal

The example of Supreme Aluminum [illegible]stries demonstrates a common failure in QWL initiatives--the program is introduced with little thought to continuing change and review. Any QWL program should be introduced with the understanding that there be a commitment to a serious review in their future. The requirement for continuous renewal should be built into the initial QWL program. It is astonishing how quickly a program conceived in a spirit of exploration and openness becomes dogma with supporting rules, justifications, and constraints.

It is probably unwise to give a QWL initiative a finite life (with "a sunset clause"). Such a strategy suggests that commitment to the program may not be complete, and it suggests a tentativeness which may ultimately harm the prospects of the program. Ideally, QWL initiatives should not be regarded as "experiments", and the terms and conditions of the programs should be clearly spelled out and understood by all employees.

A commitment to renewal is not necessarily a commitment to change in the future; rather, it is a commitment to revitalize, develop, and encourage the values, philosophy, and spirit that underlie the quality of working life program. A QWL initiative that simply changes decision-making structures or methods of work, without addressing the fundamental values of employees, is destined to fail. The formal and elaborate structures at Byers Transport and Vermont Asbestos were not sufficient to maintain these programs when the fundamental values of employees remained unaltered. A QWL initiative is somewhat like a foreign substance entering a living organism. QWL initiatives are often limited and killed off by organizational antibodies that endeavour to protect the host from the intruding element. Organizational antibodies include rules, policies, collective agreements, supervisory discretion, management indifference and neglect, and traditional practices.

How frequently should renewal be considered? The frequency of reviews of QWL initiatives will depend upon the unique circumstances in each company. Among these are the willingness of employees to undertake a systematic review, the extent to which competitive, economic, or technological circumstances dictate a reconceptualization or redesign of the QWL initiative, the opportunities the initiative itself provides for continuing improvements, and the willingness of management and employees to undertake a reassessment of the program.

Regardless of how frequently renewals are undertaken, broad support must be marshalled. Enthusiasm among some but not all employees is not sufficient. The change agent (consultant, employee representative, manager) must often wait until the conditions are right. Although economic difficulties (as in the Supreme Aluminum case) often direct employee attention away from the quality of working life initiative, in some circumstances economic difficulties can be a stimulus to change. In firms that have introduced QWL programs during periods of economic difficulty, however, it is commonplace for the programs to lose support as the difficult times pass. Employee commitment must be deeper--that is, it must be based on a set of supporting values, and not simply on a desire to maintain employment or profitability.

Quality of working life programs can have lasting impact, but evidence suggests that success is limited to those initiatives that permit change through continuing review. The new initiative should not freeze into a pattern that precludes continuing review, appraisal and change. It is important to note that continuous renewal is essential not simply because of environmental pressures and change, but because these initiatives can succeed only when the commitment of organization members is revived and their shared values are reaffirmed.

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